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Moored Current and Pressure Data from the Labrador/Newfoundland Shelf, June 1985 – July 1987

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Canadian Data Report Of Hydrography and Ocean Sciences

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Canadian Data Report of

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JULY 1988

MOORED CURRENT AND PRESSURE DATA FROM THE LABRADOR/NEWFOUNDLAND SHELF, JUNE 1985 - JULY 1987

by

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ABSTRACT

Wright, D.G., J.R.N. Lazier, and W. Armstrong. 1988. Moored current and pressure data from the Labrador/Newfoundland Shelf, June 1985 - July 1987. Can. Data Rep. Hydrogr. Ocean Sci. No. 62: x + 258 pp.

Between the summers of 1985 and 1986 there were 11 records of sub-surface pressure and 11 records of currents collected over the Labrador/Newfoundland Shelf, each extending over a time interval exceeding 90 days. Between the summers of 1986 and 1987 there were 17 additional pressure records and 26 additional current meter records. There were also several CTD sections collected across the shelf during this time interval. These records provide a large spatial scale antenna to detect and examine low-frequency motions and water property changes over the Labrador Shelf. This report presents those data as sections of temperature, salinity, density and buoyancy frequency; tidal constituents for pressures and currents; frequency distributions of de-tided pressure variations and current speeds; spectra of pressure and current variations; progressive vector diagrams and "stick plots" of low-pass filtered currents; and time series plots of low-pass filtered pressure, temperature, salinity, density and current components. Residual currents are presented in east-west/north-south as well as major/minor axis coordinate systems and basic statistics are briefly summarized for each.

RÉSUMÉ

Wright, D.G., J.R.N. Lazier, and W. Armstrong. 1988. Moored current and pressure data from the Labrador/Newfoundland Shelf, June 1985 - July 1987. Can. Data Rep. Hydrogr. Ocean Sci. No. 62: x + 258 pp.

Entre les étés de 1985 et de 1986, 11 enregistrements de la pression sous la surface et 11 enregistrements de courants ont été effectués sur le plateau continental du Labrador et de Terre-Neuve, chacun des enregistrements couvrant un intervalle de plus de 90 jours. Entre les étés de 1986 et de 1987, 17 autres enregistrements de la pression et 26 autres des courants ont été effectués. Plusieurs profils de CTP ont également été recueillis sur le plateau continental pendant cet intervalle. Ces enregistrements constituent une représentation spatiale à grande échelle pour la détection et l'examen des mouvements de basse fréquence et des changements des propriétés de l'eau sur le plateau continental du Labrador. Ce rapport présente les données sous forme de profils de température, de salinité, de densité et de fréquence de flottabilité; sous forme de composantes de la marée pour les pressions et les courants; sous forme de distributions de fréquences des variations de la pression et des vitesses du courant non attribuables aux marées; sous forme de spectres des variations de la pression et du courant; sous forme de diagrammes vectoriels progressifs et de "graphiques en bâtonnets" des courants filtrés au filtre passe-bas; et sous forme de tracés de successions chronologiques des composantes pression, température, salinité, densité et courant filtrées au filtre passe-bas. Les courants résiduels sont présentés suivant les systèmes de coordonnées est-ouest/nord-sud et axes majeur/mineur, et les statistiques de base sont brièvement résumées pour chacun.

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INTRODUCTION

Between the summer of 1985 and the summer of 1987, there were several field programs which collected data over the Labrador/Newfoundland Shelf. Some coastal pressure gauges were deployed as part of ongoing studies by the Hydrography Section at BIO, gauges were in place over Nain Bank as part of a program to study ice conditions and dynamics on the Labrador/Newfoundland Shelf, several pressure gauges were moored over Hamilton Bank as part of a long-term program aimed primarily at monitoring transport across this section, and the remainder of the pressure gauges were deployed as part of a program to study the dynamics of low-frequency motions in this area. Current meters moored over the shelf during this period were associated with the monitoring program across Hamilton Bank; with a study of surface mixed-layers conducted near Hibernia on the Grand Bank; and with the study of the dynamics of low-frequency motions mentioned above. This report collects all of these data together as part of the ongoing studies of Labrador/Newfoundland Shelf dynamics.

Figure 1 shows the area considered and the locations of several CTD sections occupied during mooring deployment and recovery cruises in the summers of 1985 and 1986. The hydrographic data from these cruises are presented in Figures 2-5 (additional hydrographic data have been collected in this area by BIO but will not be reported here.) We note that these data are all from summer months. No hydrographic information from winter months was obtained other than from current meter moorings.

Figure 6 and Table 1 give the locations and time intervals for each of the pressure records as well as the approximate water depth (a water depth of 0 m implies the gauge was near shore -- actually under several meters of water). Figure 7 graphically illustrates the time intervals when useful data were collected. Throughout the report each record is identified by a station number and a nominal instrument depth.

The pressure records were strongly dominated by the diurnal and semi-diurnal tides. Figures 8 and 9 show 16 days of data from some typical pressure records along the coast and across the shelf over Hamilton Bank.

After checking, editing and despiking the data, the BIO tidal package was used to determine tidal constituents corresponding to each pressure record. Mean values of tidal parameters and standard deviations between the non-overlapping 29 days blocks which constitute each record are summarized in Table 2. Even after detiding (which generally removed >95% of the energy in the tidal bands) tidal frequencies still constituted a major part of the energy spectrum. Presumably the residual tidal energy is due to the variations in the baroclinic tide, associated with temporal changes in the background density and current fields, which are not removed using standard tidal analysis routines. Figures 10a, b show typical pressure spectra before and after de-tiding. Tides were finally reduced to a minimal level (Figure 10c) by application of the low-pass filter illustrated in Figure 11, which passed essentially all of the energy at periods exceeding 2 days and less than 2% of the energy at periods less than 1 day. Each pressure record was then decimated to a six hour sampling rate for subsequent analysis.

Figures 12 and 13 show the locations at which subsurface pressure data were collected during 1985/86 and 1986/87, respectively each followed by summary plots for the corresponding data sets. All summary plots (time series, spectra and histograms) for the pressure records correspond to the detided and filtered data. The location of each gauge is indicated by a dot on the accompanying map. It should be noted that the pressure spectra are shown out to periods of order one day, but the filters discussed above strongly suppress the energy at this period. Periods exceeding two days were not significantly influenced by the filtering. The standard deviations (SD) given on the time series plots exclude the high frequency energy. Also note that the standard deviation (sd) quoted on each spectrum corresponds to the frequency range shown on the figure and does not include contributions from periods in excess of 40 days.

The remainder of the report gives information for the current data generally paralleling that given for the pressure data. Figure 14 and Table 3 give the locations, time intervals and water depth for each of the current records and Figure 15 graphically illustrates the time intervals when useful current data is available.

Tidal constituents determined from the current data are given in Table 4. Tides did not generally dominate the currents. Indeed, many of the tidal constituents shown in Table 4 are smaller than the corresponding standard deviation between 29 day blocks and hence are not very meaningful. All constituents are shown with standard deviations so the reader may judge their significance.

The original current records had various sampling rates (20, 30, 60 or 180 minutes -- see Table 3). To obtain time series of currents at the minimum common sampling rate, the filters illustrated in Figures 16, 17 and 18 were applied to the 20, 30 and 60 minute data and all records were decimated to a three hour sampling interval. Finally the filter illustrated in Figure 19 was applied to all 3-hourly current meter records and the filtered data were decimated to a six hour sampling interval. The final filter (Figure 20) was applied to the 3-hourly current data before decimating to a one day sampling rate for the purpose of producing the "stick plots" of currents shown in subsequent figures.

Figures 21 and 22 show the locations at which current data were collected during 1985/86 and 1986/87 respectively, each followed by summary plots for the corresponding data sets. Summary plots for the currents include rotary spectra of the full signal (including tides and inertial currents as well as lower frequency variations), histograms of detided current speeds (still including inertial currents and low frequencies), progressive vector diagrams and time series plots of the residual currents (inertial frequencies removed: see Figure 19), and stick plots of low frequency currents (see Figure 20). On the progressive vector diagrams every tenth day is marked by a plus (+) sign and the Julian day is indicated every fiftieth day. Currents are presented in both (east, north) coordinates and in (minor, major) axis of variance coordinates. All time series plots of currents have means removed and means are given in the immediately preceeding table of statistics. Time series plots of temperature, salinity and density (after application of the filter shown in Figure 19) are also presented.

Finally, we note that a separate report for data collected at and near moorings 781-783 (near Hibernia) is presented by deYoung and Tang (1988). Their report concentrates on the near-inertial current variations which dominate the near surface currents.

Acknowledgements

Several colleagues at BIO contributed to the preparation of this report. We are particularly grateful to Jennifer Hackett, Roger Pettipas and Meg Burhoe for their very helpful and cheerful contributions. Data were contributed by the BIO Hydrography Section, and by Graham Symonds, Charles Tang, Carl Anderson and Charlie Ross. We appreciate their generous cooperation. Some of the data collection and analysis were funded by the Panel on Energy Research and Development.

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deYoung, B. and C. Tang, 1988: Current Meter, CTD and Meteorological Observations on the Northern Grand Banks (47°N, 48°W) for April - October 1986. Canadian Data Report of Hydrography and Ocean Sciences, (In preparation).

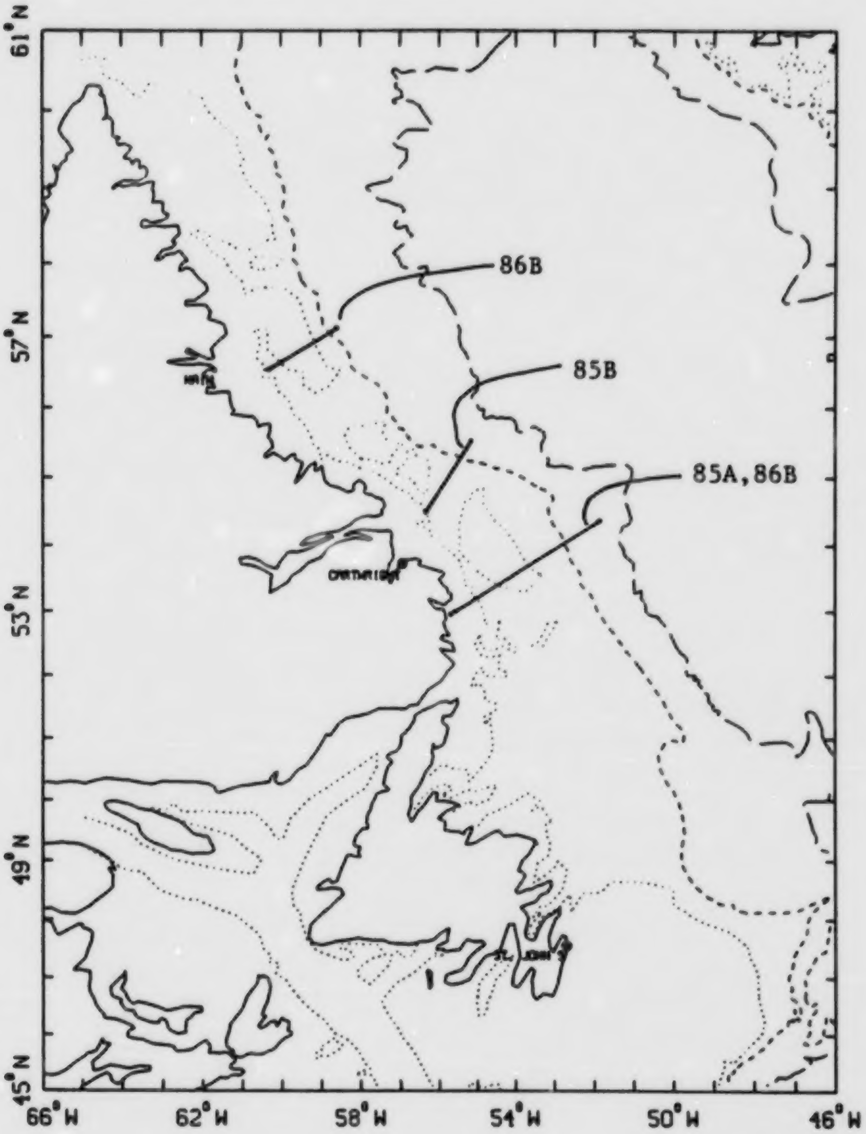

61°N
57°N
53°N
49°N
45°N
66°W
62°W
58°W
54°W
50°W
46°W
86B
85B
85A,86B
NAIN
CARTWRIGHT
ST. JOHN'S

Figure 1. Map of the Labrador/Newfoundland Shelf region showing the locations of CTD sections. Isobaths are indicated by (·····) 200 m, (- - - -) 1000 m and (— —) 3000 m.

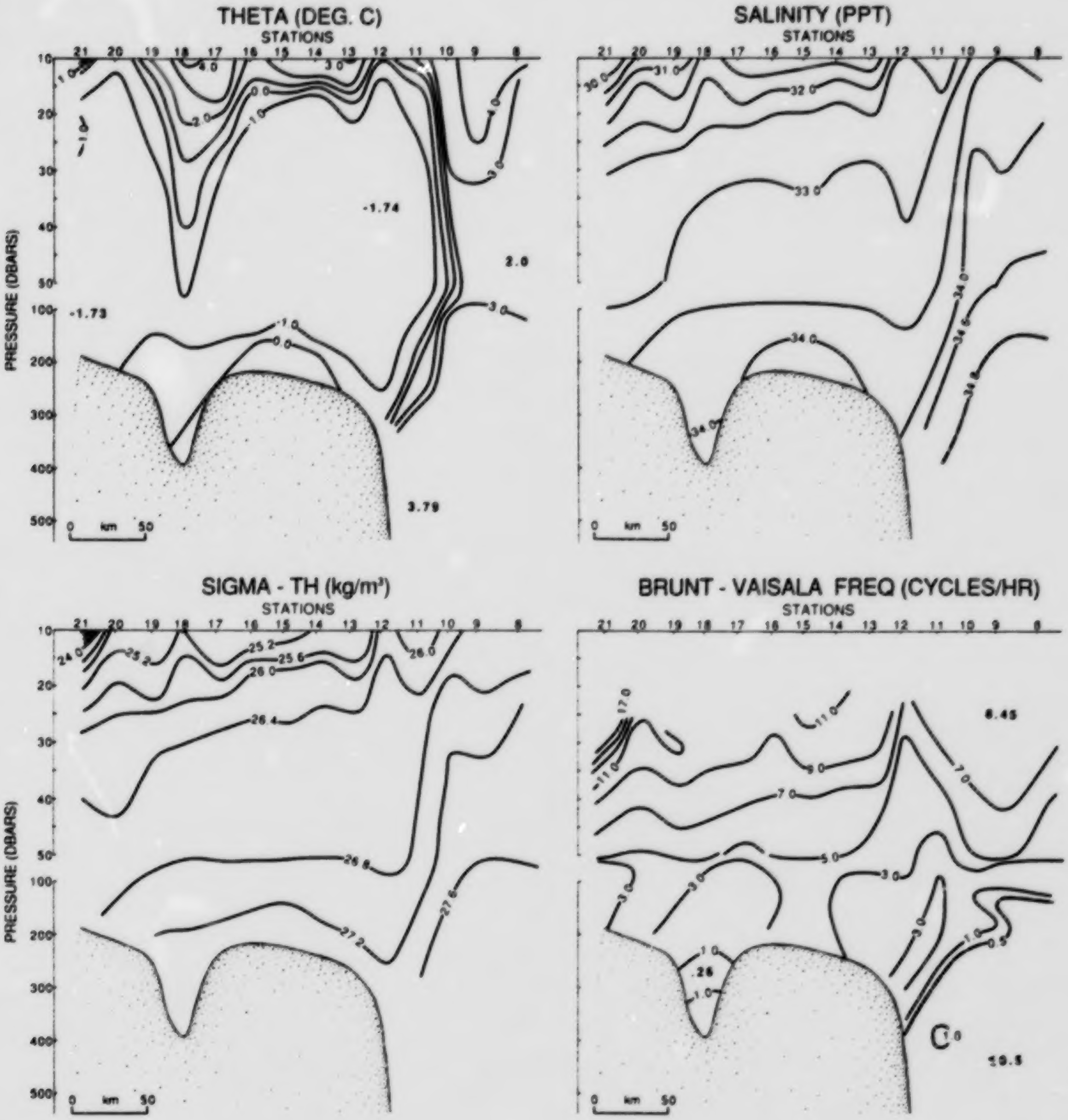


Figure 2. CTD section information from the section labelled 85A in Figure 1. Data collected during October 1985. Note that on this and the following three plots, the vertical scale changes at 50 m depth.

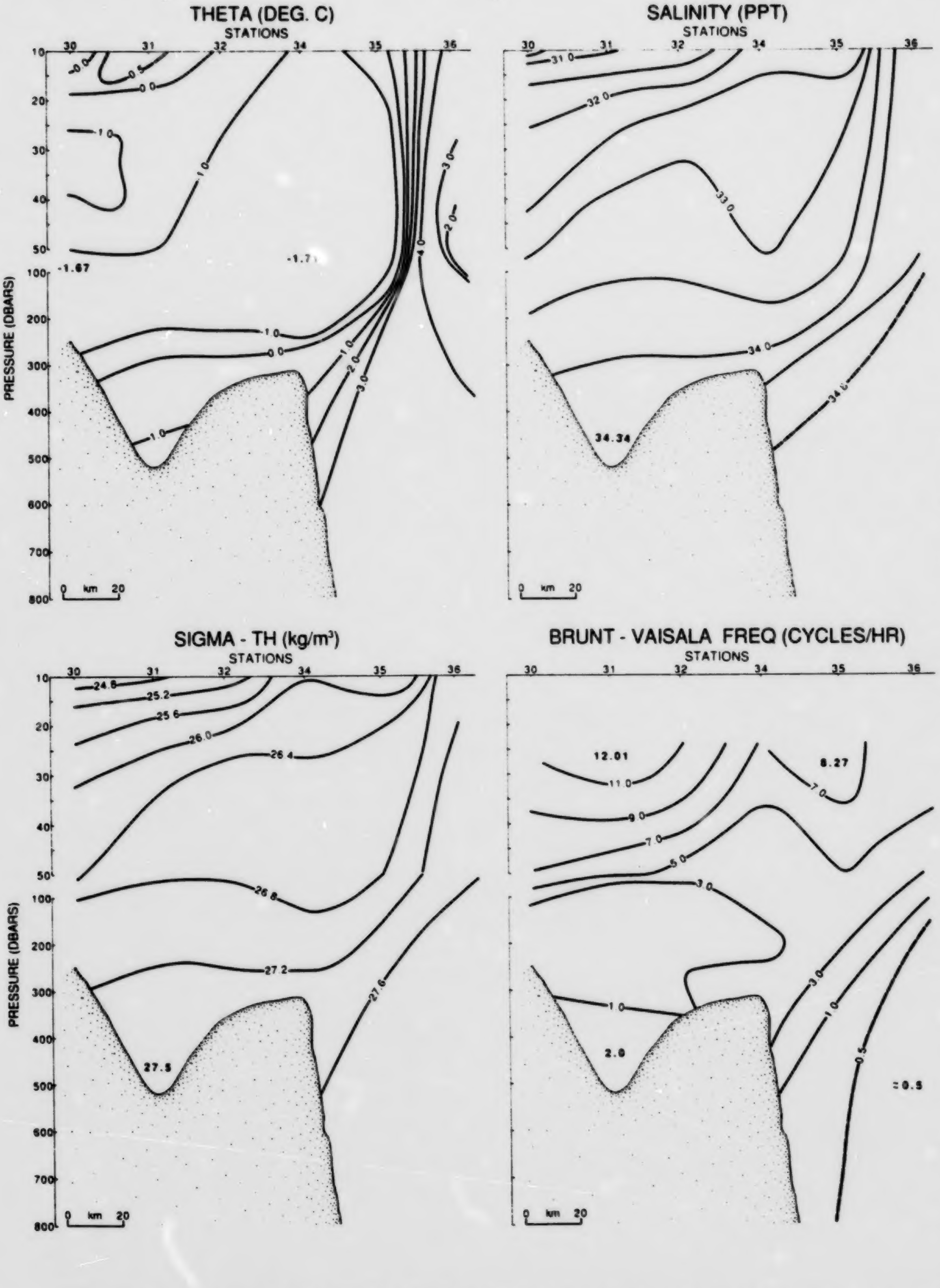
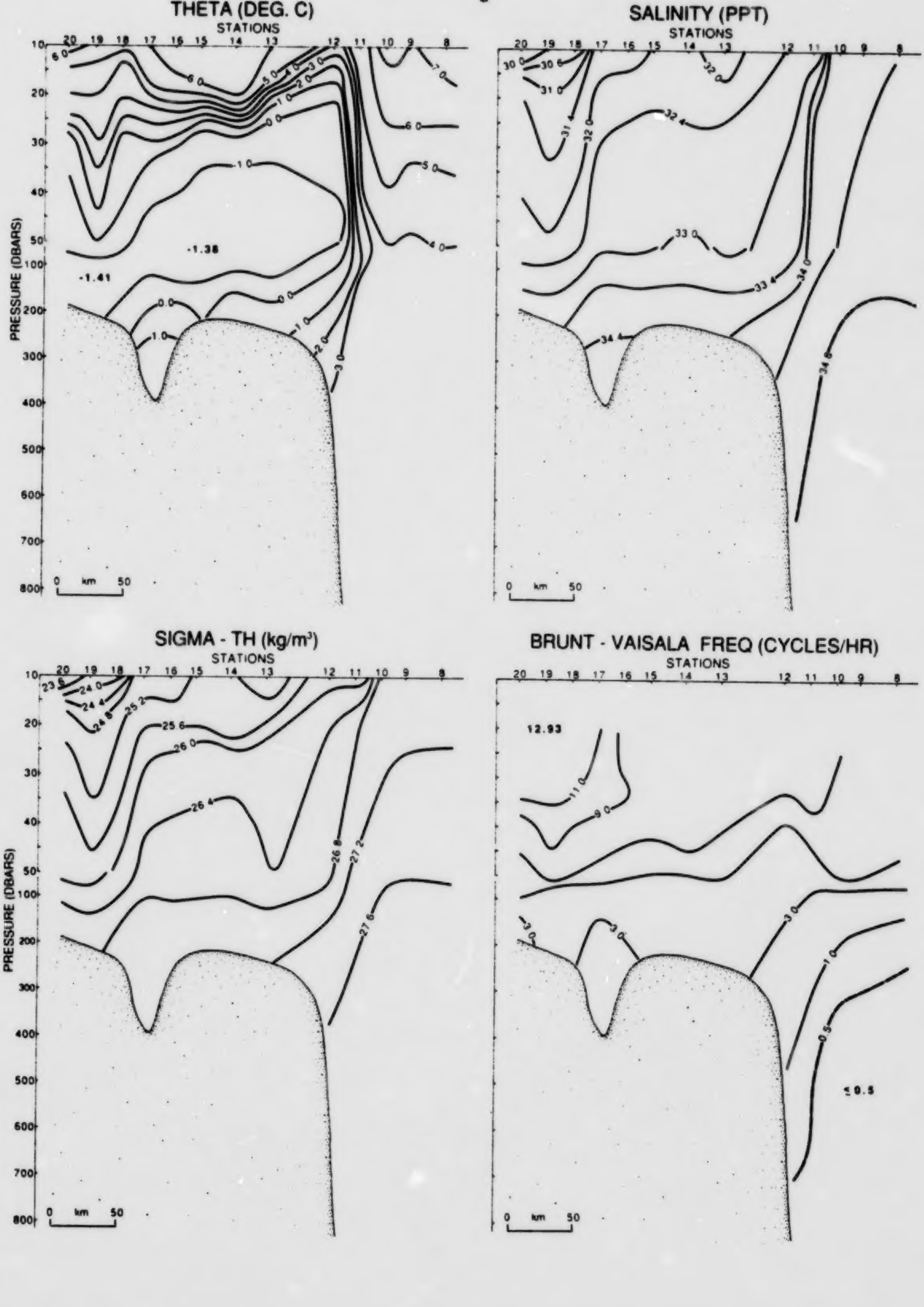


Figure 3. **CTD section information from the section labelled 85B in Figure 1. Data collected during October, 1985.**



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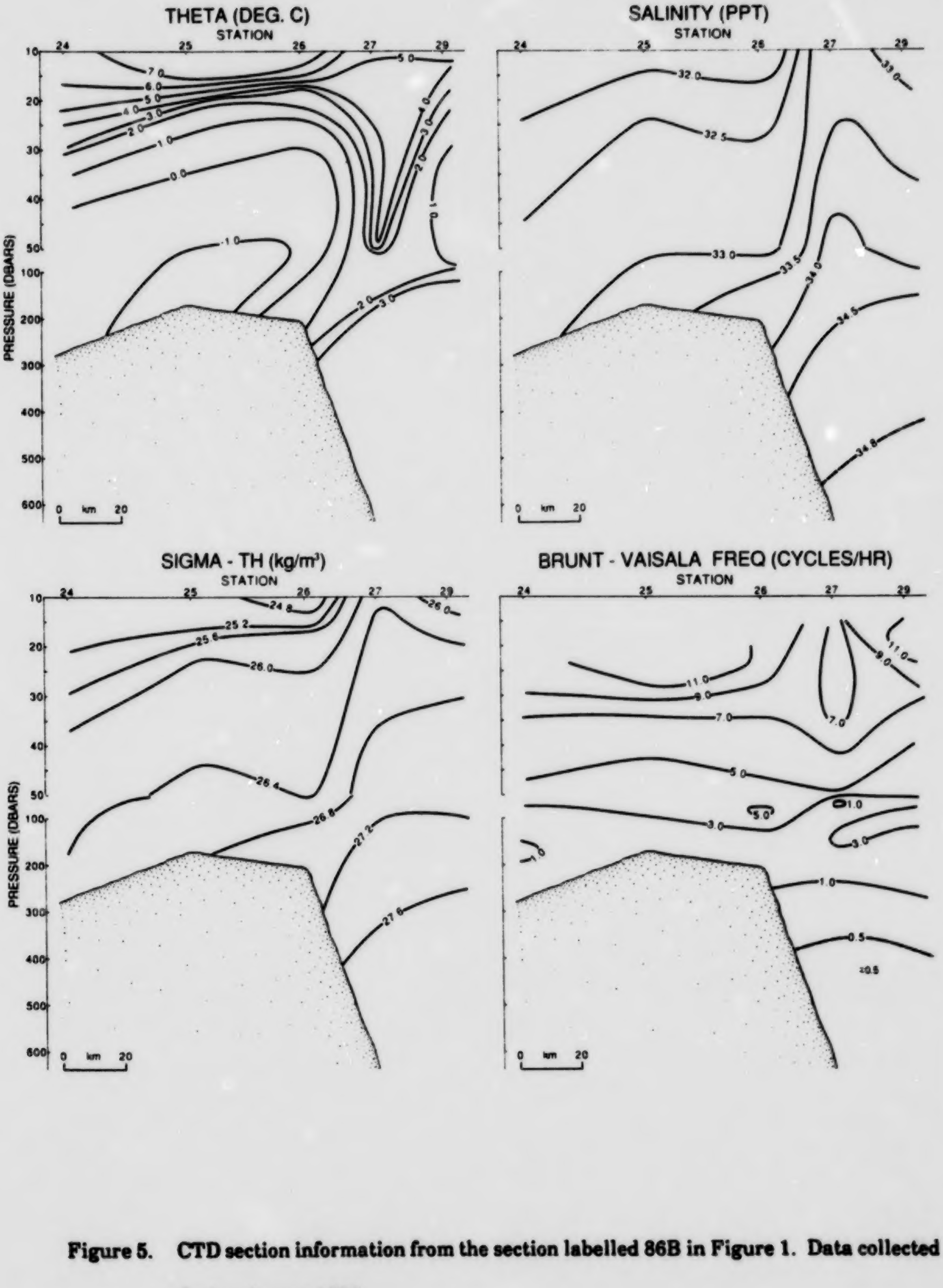
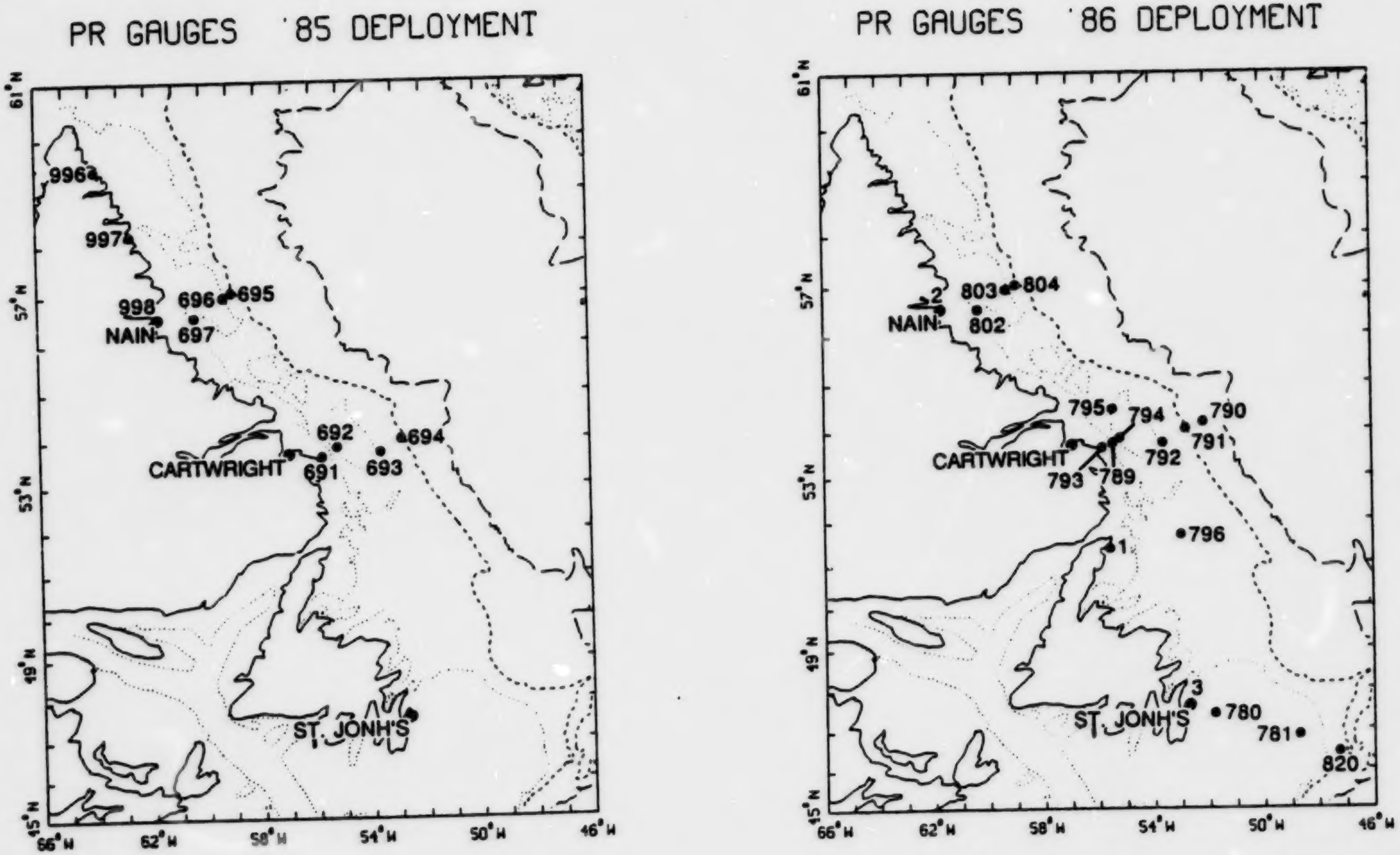


Figure 5. CTD section information from the section labelled 86B in Figure 1. Data collected during August 1986.


PR GAUGES '85 DEPLOYMENT
PR GAUGES '86 DEPLOYMENT
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CARTWRIGHT
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ST. JONH'S
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780
781
820
61°N
57°N
53°N
49°N
45°N
66°W
62°W
58°W
54°W
50°W
46°W

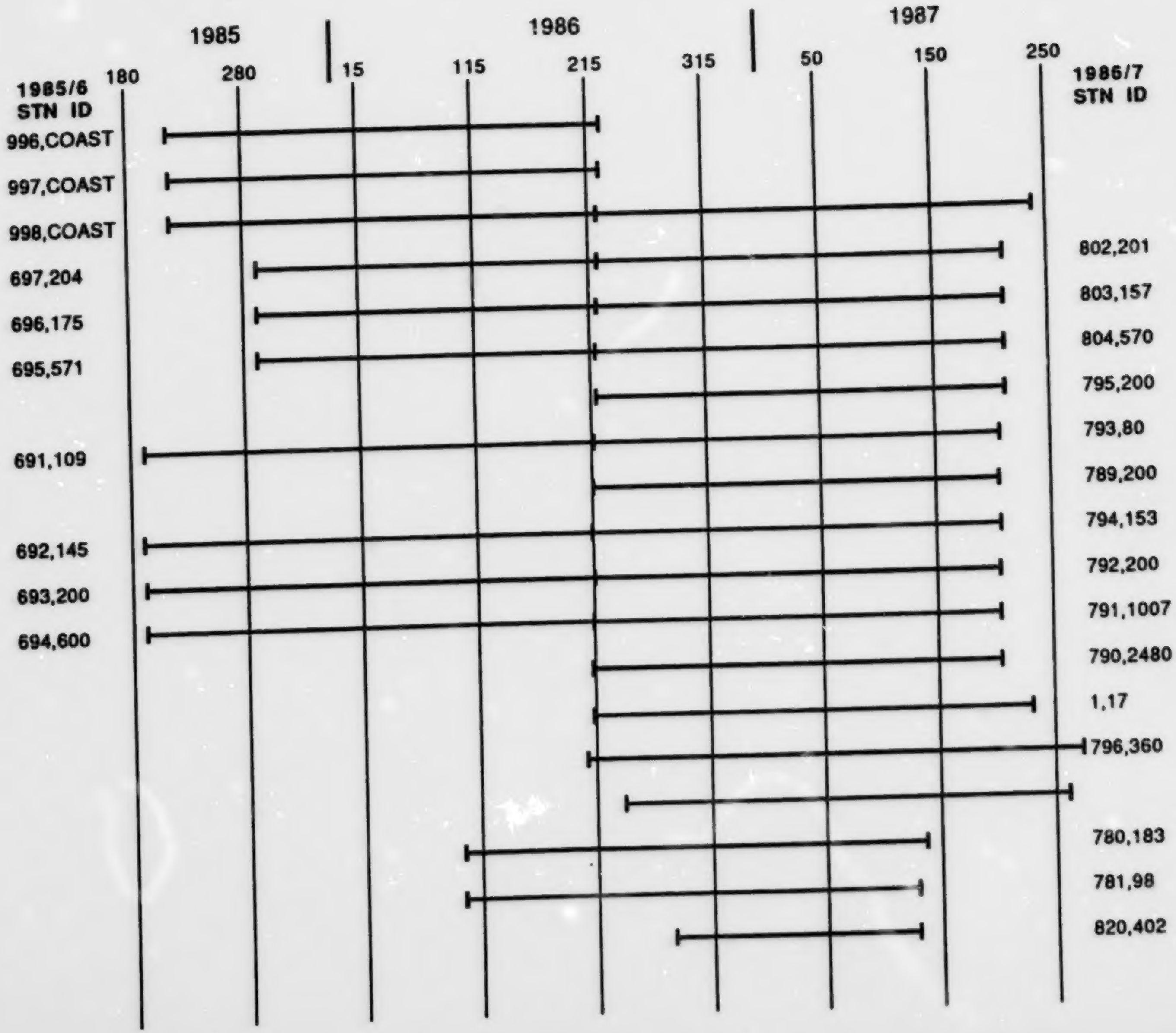
Figure 6. Locations of pressure gauges during 1985/86 and 1986/87. Isobaths are indicated by (·····) 200 m, (- - - -) 1000 m and (— —) 3000m.

PRESSURE GUAGES

STATION	INSTR. TYPE	SAMPLING RATES (SEC)	LAT.	LONG.	WATER DEPTH (M)	START DATE	LENGTH (DAYS)
(996;COAST)	WLR5	3600	59.42N	63.85W	0	12/ 8/85	360
(997;COAST)	WLR5	3600	58.18N	62.62W	0	12/ 8/85	359
(998;COAST)	WLR5	3600	56.55N	61.68W	0	11/ 8/85	359
(2;COAST)	WLR5	3600	56.53N	61.68W	4	5/ 8/86	381
(697; 204M)	WLR5	3600	56.55N	60.32W	203	15/10/85	297
(802; 201M)	WLR5	3600	56.54N	60.33W	201	8/ 8/86	357
(696; 175M)	WLR5	3600	56.95N	59.26W	174	14/10/85	298
(803; 157M)	WLR5	3600	56.94N	59.30W	157	8/ 8/86	357
(695; 571M)	WLR5	3600	57.05N	58.96W	570	15/10/85	297
(804; 570M)	WLR5	3600	57.03N	58.95W	570	9/ 8/86	358
(795; 200M)	WLR5	3600	54.46N	55.44W	200	5/ 8/86	360
(691; 109M)	WLR5	3600	53.63N	55.74W	109	6/ 7/85	394
(793; 80M)	WLR5	3600	53.63N	55.83W	80	4/ 8/86	360
(789; 200M)	WLR5	3600	53.73N	55.45W	200	4/ 8/86	360
(692; 145M)	WLR5	3600	53.84N	55.18W	145	6/ 7/85	394
(794; 153M)	WLR5	3600	53.84N	55.18W	153	4/ 8/86	360
(693; 200M)	WLR5	3600	53.73N	53.61W	200	5/ 7/85	394
(792; 200M)	WLR5	3600	53.73N	53.62W	200	3/ 8/86	354
(694; 600M)	WLR5	3600	54.01N	52.85W	600	5/ 7/85	393
(791;1007M)	WLR5	3600	54.03N	52.78W	1007	3/ 8/86	355
(790;2480M)	WLR5	3600	54.17N	52.13W	2480	2/ 8/86	356
(1; 17M)	WLR5	3600	51.37N	55.58W	17	3/ 8/86	381
(796; 360M)	WLR5	3600	51.67N	52.99W	360	27/ 7/86	360
(3;COAST)	WLR5	3600	47.47N	52.77W	8	30/ 8/86	378
(780; 183M)	WLR5	3600	47.40N	51.80W	183	20/ 4/86	387
(781; 98M)	WLR5	3600	46.86N	48.72W	98	21/ 4/86	381
(820; 402M)	WLR5	3600	46.42N	47.27W	402	14/10/86	206

Table 1. Pressure gauge identifications. Each instrument is identified by a station number and a nominal instrument depth.

Figure 7. Time intervals during which each of the pressure gauges returned useful data. The location of each gauge is given in Table 1.



NEAR-SHORE PRESSURES / NORTH TO SOUTH

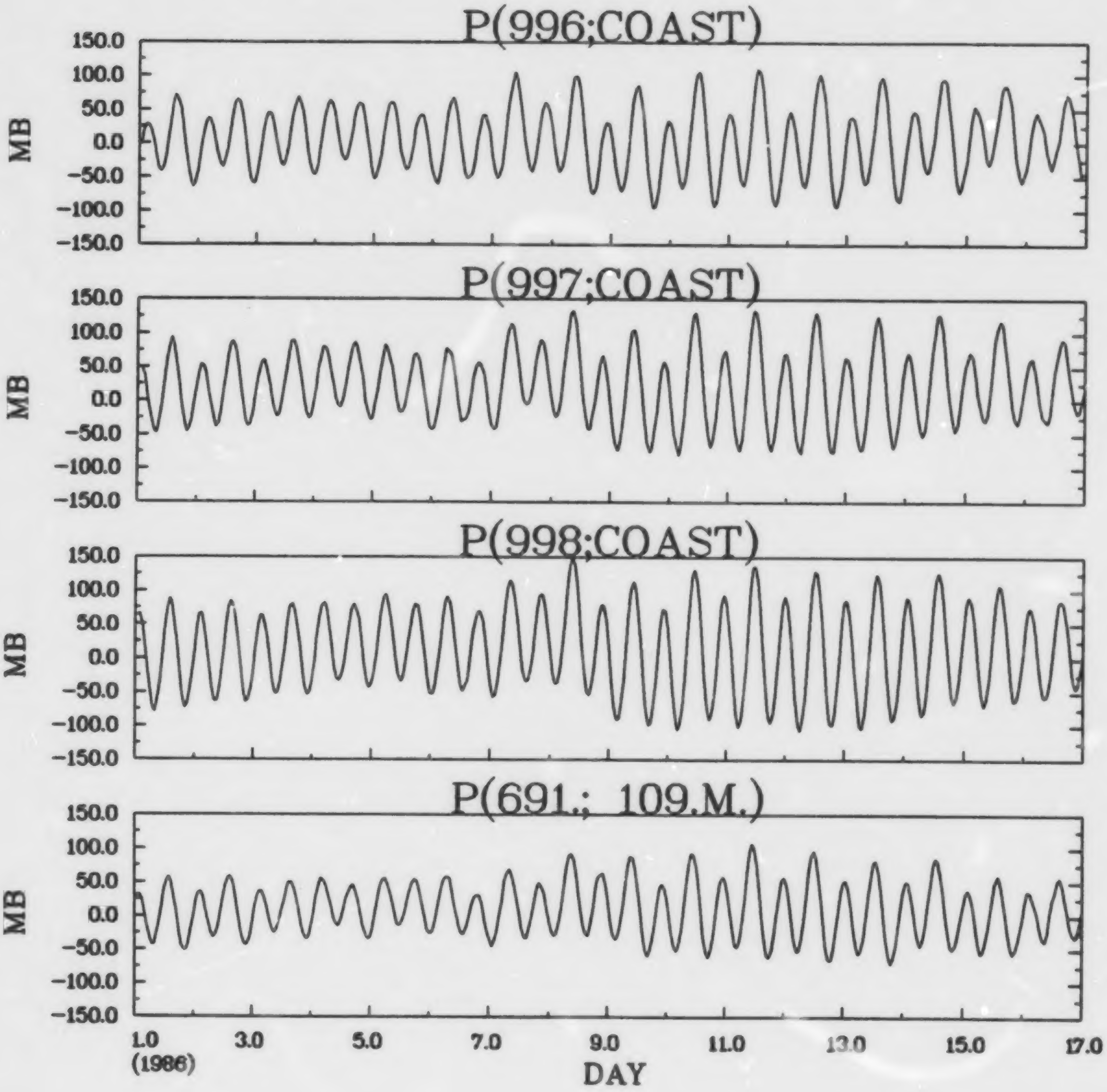
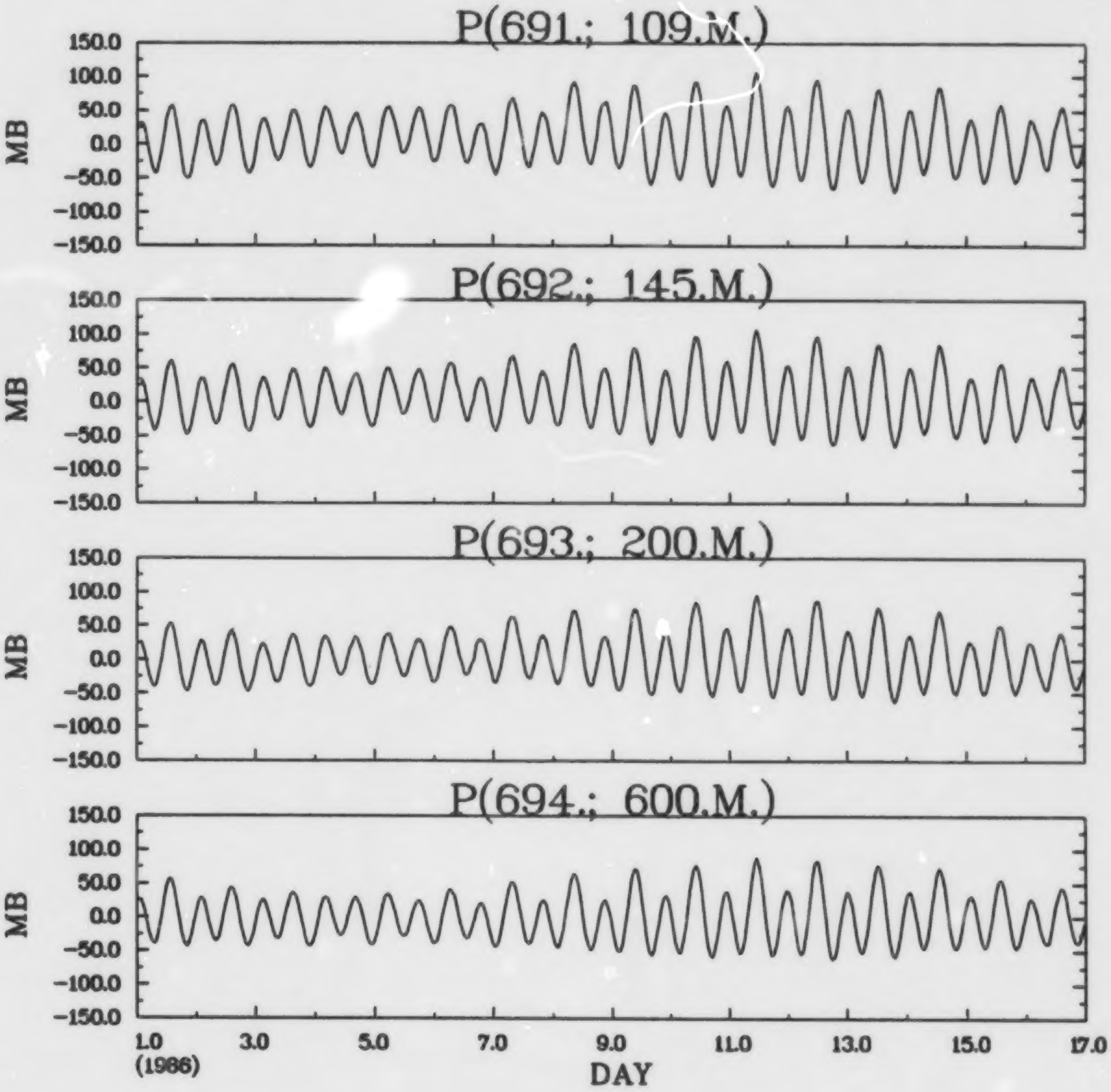


Figure 8. Some typical pressure records from coastal stations distributed along the shelf (north to south). Refer to Figure 6 for station locations. MB=millibars.



HAMILTON BANK PRESSURES / WEST TO EAST

P(691.; 109.M.)

P(692.; 145.M.)

P(693.; 200.M.)

P(694.; 600.M.)

Figure 9. Some typical pressure records from stations across Hamilton Bank (onshore to offshore). Refer to Figure 6 for station locations. MB = millibars.

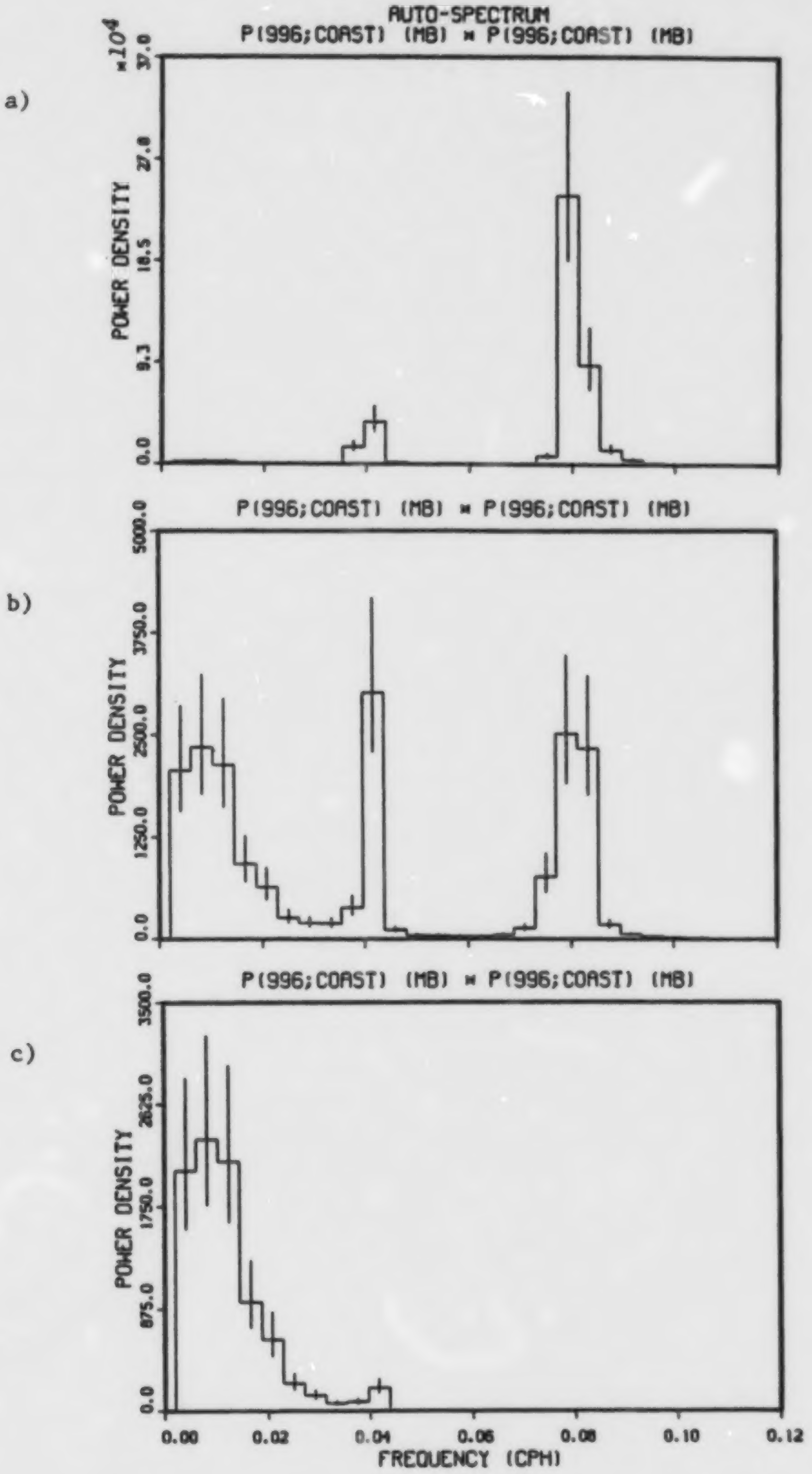


Figure 10. Typical spectra of the pressure data: (a) before detiding, (b) after detiding, and (c) after detiding and filtering. Power density is given in units of millibars/cycle per hour.

Table 2

Tidal constituents determined from analysis of each of the pressure records. The analysis was done on 29 day blocks and results were averaged to give mean values over the full record. Standard deviations over all blocks are presented to give an idea of the reliability of the results. MB = millibars.

CONSTITUENT M2

STATION	# BLOCKS	AMPLITUDE(MB)	PHASE(DEG)
P(996;COAST)	12	53.04(+/- 2.23)	350.7(+/- 1.8)
P(997;COAST)	12	59.28(+/- 1.87)	308.5(+/- 0.7)
P(998;COAST)	12	75.08(+/- 1.61)	319.2(+/- 2.9)
P(2;COAST)	13	75.22(+/- 0.88)	318.4(+/- 2.5)
P(697; 204M)	10	66.24(+/- 1.54)	304.7(+/- 1.2)
P(802; 201M)	12	66.13(+/- 1.63)	304.7(+/- 0.9)
P(696; 175M)	10	65.26(+/- 1.44)	303.7(+/- 1.2)
P(803; 157M)	12	65.20(+/- 1.63)	303.5(+/- 1.0)
P(695; 571M)	10	65.41(+/- 1.49)	303.6(+/- 1.0)
P(804; 570M)	12	65.27(+/- 1.50)	303.8(+/- 0.8)
P(795; 200M)	12	50.63(+/- 0.99)	304.7(+/- 0.8)
P(691; 109M)	14	45.74(+/- 1.03)	309.3(+/- 1.1)
P(793; 80M)	12	46.24(+/- 1.02)	310.7(+/- 0.8)
P(789; 200M)	12	45.57(+/- 0.94)	306.6(+/- 1.3)
P(692; 145M)	14	45.74(+/- 1.00)	305.7(+/- 1.1)
P(794; 153M)	12	45.88(+/- 0.94)	306.3(+/- 0.9)
P(693; 200M)	14	40.90(+/- 0.74)	299.9(+/- 1.3)
P(792; 200M)	12	44.79(+/- 0.89)	299.0(+/- 1.4)
P(694; 600M)	14	40.47(+/- 0.68)	297.2(+/- 1.2)
P(791;1007M)	12	40.17(+/- 0.90)	295.3(+/- 1.2)
P(790;2480M)	12	40.61(+/- 0.69)	292.8(+/- 1.5)
P(1; 17M)	13	34.00(+/- 0.87)	304.3(+/- 2.4)
P(796; 360M)	12	33.11(+/- 0.99)	303.3(+/- 1.8)
P(3;COAST)	13	36.91(+/- 0.38)	313.5(+/- 2.1)
P(780; 183M)	13	34.84(+/- 0.37)	319.9(+/- 1.6)
P(781; 98M)	13	21.00(+/- 0.29)	331.2(+/- 1.6)
P(820; 402M)	7	15.55(+/- 0.16)	338.3(+/- 0.8)

CONSTITUENT S2

STATION	# BLOCKS	AMPLITUDE(MB)	PHASE(DEG)
P(996;COAST)	12	11.93(+/- 0.83)	14.3(+/- 3.6)
P(997;COAST)	12	21.82(+/- 1.16)	334.0(+/- 2.6)
P(998;COAST)	12	27.68(+/- 1.11)	352.0(+/- 6.2)
P(2;COAST)	13	27.79(+/- 1.36)	352.3(+/- 4.3)
P(697; 204M)	10	23.43(+/- 2.01)	334.3(+/- 2.6)
P(802; 201M)	12	24.77(+/- 1.19)	334.6(+/- 2.4)
P(696; 175M)	10	22.89(+/- 1.95)	333.5(+/- 2.6)
P(803; 157M)	12	24.18(+/- 1.20)	333.8(+/- 2.3)
P(695; 571M)	10	22.92(+/- 1.97)	333.7(+/- 2.7)
P(804; 570M)	12	24.17(+/- 1.13)	334.3(+/- 2.6)
P(795; 200M)	12	20.16(+/- 0.98)	334.8(+/- 2.4)
P(691; 109M)	14	18.24(+/- 0.92)	340.1(+/- 2.7)
P(793; 80M)	12	18.89(+/- 0.95)	338.8(+/- 2.5)
P(789; 200M)	12	18.74(+/- 0.97)	335.7(+/- 1.8)
P(692; 145M)	14	18.29(+/- 0.91)	337.7(+/- 2.8)
P(794; 153M)	12	18.85(+/- 0.96)	335.9(+/- 2.5)
P(693; 200M)	14	16.65(+/- 0.86)	333.6(+/- 2.6)
P(792; 200M)	12	18.85(+/- 0.95)	330.4(+/- 1.7)
P(694; 600M)	14	16.27(+/- 0.85)	331.7(+/- 2.7)
P(791;1007M)	12	16.69(+/- 0.75)	328.0(+/- 2.2)
P(790;2480M)	12	16.85(+/- 0.79)	325.6(+/- 1.9)
P(1; 17M)	13	16.61(+/- 0.69)	338.6(+/- 2.9)
P(796; 360M)	12	15.31(+/- 0.67)	337.0(+/- 2.9)
P(3;COAST)	13	15.22(+/- 0.71)	358.3(+/- 2.6)
P(780; 183M)	13	14.53(+/- 0.64)	.2(+/- 2.5)
P(781; 98M)	13	9.65(+/- 0.45)	8.3(+/- 2.5)
P(820; 402M)	7	7.47(+/- 0.30)	13.6(+/- 2.8)

CONSTITUENT N2

STATION	# BLOCKS	AMPLITUDE(MB)	PHASE(DEG)
P(996;COAST)	12	13.95(+/- 1.55)	323.0(+/- 7.7)
P(997;COAST)	12	14.04(+/- 1.51)	289.2(+/- 6.8)
P(998;COAST)	12	16.89(+/- 2.11)	301.1(+/- 7.6)
P(2;COAST)	13	16.73(+/- 2.13)	300.5(+/- 6.5)
P(697; 204M)	10	15.29(+/- 1.48)	283.5(+/- 6.5)
P(802; 201M)	12	14.71(+/- 1.42)	285.9(+/- 5.1)
P(696; 175M)	10	15.03(+/- 1.52)	282.3(+/- 6.7)
P(803; 157M)	12	14.43(+/- 1.43)	284.4(+/- 5.4)
P(695; 571M)	10	15.04(+/- 1.42)	282.3(+/- 6.3)
P(804; 570M)	12	14.40(+/- 1.53)	284.8(+/- 5.8)
P(795; 200M)	12	11.17(+/- 1.54)	286.9(+/- 8.2)
P(691; 109M)	14	10.36(+/- 1.38)	291.6(+/- 8.6)
P(793; 80M)	12	10.33(+/- 1.49)	293.6(+/- 8.5)
P(789; 200M)	12	10.14(+/- 1.36)	289.7(+/- 7.9)
P(692; 145M)	14	10.23(+/- 1.43)	287.9(+/- 8.8)
P(794; 153M)	12	10.15(+/- 1.39)	289.4(+/- 8.4)
P(693; 200M)	14	9.02(+/- 1.12)	283.2(+/- 8.1)
P(792; 200M)	12	9.79(+/- 1.31)	282.8(+/- 8.3)
P(694; 600M)	14	8.89(+/- 1.12)	280.5(+/- 7.9)
P(791;1007M)	12	8.60(+/- 1.35)	278.4(+/- 8.8)
P(790;2480M)	12	8.58(+/- 1.06)	277.1(+/- 7.3)
P(1; 17M)	13	7.66(+/- 1.16)	293.3(+/- 7.4)
P(796; 360M)	12	7.11(+/- 0.95)	290.3(+/- 8.3)
P(3;COAST)	13	7.63(+/- 0.91)	300.4(+/- 7.3)
P(780; 183M)	13	7.22(+/- 1.16)	305.0(+/- 8.8)
P(781; 98M)	13	4.47(+/- 0.71)	317.9(+/- 8.6)
P(820; 402M)	7	3.31(+/- 0.43)	325.8(+/- 6.4)

CONSTITUENT K1

STATION	# BLOCKS	AMPLITUDE(MB)	PHASE(DEG)
P(996;COAST)	12	15.56(+/- 0.77)	169.9(+/- 2.5)
P(997;COAST)	12	13.53(+/- 0.76)	179.8(+/- 2.7)
P(998;COAST)	12	9.59(+/- 0.35)	183.4(+/- 3.7)
P(2;COAST)	13	9.46(+/- 0.48)	184.6(+/- 2.8)
P(697; 204M)	10	9.86(+/- 0.54)	170.6(+/- 4.0)
P(802; 201M)	12	9.38(+/- 0.50)	172.6(+/- 2.2)
P(696; 175M)	10	12.45(+/- 0.64)	163.8(+/- 2.8)
P(803; 157M)	12	11.79(+/- 0.53)	165.0(+/- 2.4)
P(695; 571M)	10	12.88(+/- 0.65)	162.4(+/- 2.3)
P(804; 570M)	12	12.26(+/- 0.54)	164.0(+/- 2.2)
P(795; 200M)	12	10.61(+/- 0.45)	160.5(+/- 2.8)
P(691; 109M)	14	10.78(+/- 0.59)	159.7(+/- 3.8)
P(793; 80M)	12	10.46(+/- 0.56)	157.0(+/- 3.4)
P(789; 200M)	12	10.38(+/- 0.51)	157.8(+/- 3.5)
P(692; 145M)	14	10.59(+/- 0.53)	161.9(+/- 3.1)
P(794; 153M)	12	10.32(+/- 0.49)	159.4(+/- 3.2)
P(693; 200M)	14	10.17(+/- 0.46)	162.4(+/- 2.9)
P(792; 200M)	12	10.72(+/- 0.42)	159.5(+/- 2.5)
P(694; 600M)	14	10.21(+/- 0.45)	162.7(+/- 3.2)
P(791;1007M)	12	9.81(+/- 0.37)	159.0(+/- 2.3)
P(790;2480M)	12	10.07(+/- 0.44)	158.8(+/- 2.2)
P(1; 17M)	13	9.01(+/- 0.61)	161.3(+/- 4.2)
P(796; 360M)	12	9.04(+/- 0.35)	159.9(+/- 2.5)
P(3;COAST)	13	7.89(+/- 0.49)	159.3(+/- 4.2)
P(780; 183M)	13	7.59(+/- 0.31)	158.8(+/- 1.9)
P(781; 98M)	13	6.93(+/- 0.32)	166.6(+/- 2.6)
P(820; 402M)	7	5.29(+/- 0.14)	159.8(+/- 2.2)

CONSTITUENT O1

STATION	# BLOCKS	AMPLITUDE(MB)	PHASE(DEG)
P(996;COAST)	12	11.51(+/- 0.23)	127.8(+/- 1.7)
P(997;COAST)	12	10.83(+/- 0.35)	142.1(+/- 2.2)
P(998;COAST)	12	8.05(+/- 0.39)	161.6(+/- 5.4)
P(2;COAST)	13	8.11(+/- 0.32)	156.2(+/- 3.6)
P(697; 204M)	10	7.41(+/- 0.33)	148.4(+/- 3.3)
P(802; 201M)	12	7.34(+/- 0.32)	145.3(+/- 2.8)
P(696; 175M)	10	7.93(+/- 0.19)	128.3(+/- 1.3)
P(803; 157M)	12	7.79(+/- 0.24)	127.9(+/- 2.3)
P(695; 571M)	10	7.97(+/- 0.19)	125.2(+/- 1.3)
P(804; 570M)	12	7.99(+/- 0.19)	125.0(+/- 1.8)
P(795; 200M)	12	7.02(+/- 0.24)	123.0(+/- 1.7)
P(691; 109M)	14	6.01(+/- 0.23)	117.9(+/- 4.6)
P(793; 80M)	12	6.44(+/- 0.32)	120.6(+/- 3.8)
P(789; 200M)	12	6.60(+/- 0.27)	121.1(+/- 3.2)
P(692; 145M)	14	6.22(+/- 0.21)	122.1(+/- 4.0)
P(794; 153M)	12	6.72(+/- 0.24)	122.8(+/- 2.5)
P(693; 200M)	14	6.65(+/- 0.15)	126.4(+/- 1.7)
P(792; 200M)	12	7.59(+/- 0.21)	125.6(+/- 1.3)
P(694; 600M)	14	6.94(+/- 0.17)	127.1(+/- 1.8)
P(791;1007M)	12	7.34(+/- 0.30)	125.3(+/- 1.4)
P(790;2480M)	12	6.97(+/- 0.33)	123.6(+/- 2.4)
P(1; 17M)	13	6.37(+/- 0.53)	118.9(+/- 5.9)
P(796; 360M)	12	6.10(+/- 0.19)	126.3(+/- 3.0)
P(3;COAST)	13	6.81(+/- 1.00)	130.5(+/- 5.7)
P(780; 183M)	13	6.19(+/- 0.44)	132.5(+/- 4.6)
P(781; 98M)	13	5.79(+/- 0.34)	138.1(+/- 1.6)
P(820; 402M)	7	4.91(+/- 0.25)	148.4(+/- 2.1)

CONSTITUENT M4

STATION	# BLOCKS	AMPLITUDE(MB)	PHASE(DEG)
P(996;COAST)	12	.77(+/- 0.12)	102.1(+/- 7.3)
P(997;COAST)	12	.21(+/- 0.10)	58.9(+/- 51.1)
P(998;COAST)	12	.33(+/- 0.24)	278.4(+/- 57.0)
P(2;COAST)	13	.23(+/- 0.20)	268.5(+/- 65.3)
P(697; 204M)	10	.22(+/- 0.14)	308.0(+/- 34.5)
P(802; 201M)	12	.22(+/- 0.09)	320.9(+/- 34.8)
P(696; 175M)	10	.17(+/- 0.11)	308.7(+/- 46.1)
P(803; 157M)	12	.15(+/- 0.08)	323.7(+/- 58.1)
P(695; 571M)	10	.12(+/- 0.09)	318.0(+/- 53.8)
P(804; 570M)	12	.15(+/- 0.10)	319.6(+/- 52.3)
P(795; 200M)	12	.26(+/- 0.07)	289.7(+/- 13.3)
P(691; 109M)	14	.44(+/- 0.09)	284.1(+/- 13.5)
P(793; 80M)	12	.42(+/- 0.09)	275.1(+/- 13.1)
P(789; 200M)	12	.42(+/- 0.07)	281.7(+/- 9.4)
P(692; 145M)	14	.39(+/- 0.09)	290.6(+/- 13.0)
P(794; 153M)	12	.43(+/- 0.07)	284.7(+/- 6.9)
P(693; 200M)	14	.22(+/- 0.06)	283.5(+/- 14.7)
P(792; 200M)	12	.31(+/- 0.05)	273.3(+/- 15.7)
P(694; 600M)	14	.13(+/- 0.05)	278.0(+/- 25.5)
P(791;1007M)	12	.16(+/- 0.23)	296.7(+/- 59.8)
P(790;2480M)	12	.16(+/- 0.09)	276.7(+/- 38.2)
P(1; 17M)	13	1.06(+/- 0.40)	317.0(+/- 23.5)
P(796; 360M)	12	.47(+/- 0.05)	307.3(+/- 7.3)
P(3;COAST)	13	.81(+/- 0.22)	186.6(+/- 18.6)
P(780; 183M)	13	.90(+/- 0.19)	188.3(+/- 12.8)
P(781; 98M)	13	.72(+/- 0.15)	171.1(+/- 10.1)
P(820; 402M)	7	.41(+/- 0.04)	145.7(+/- 6.9)

CONSTITUENT MS4

STATION	# BLOCKS	AMPLITUDE(MB)	PHASE(DEG)
P(996;COAST)	12	.86(+/- 0.21)	174.5(+/- 13.7)
P(997;COAST)	12	.40(+/- 0.20)	196.2(+/- 28.8)
P(998;COAST)	12	.66(+/- 0.28)	285.7(+/- 30.6)
P(2;COAST)	13	.67(+/- 0.32)	288.1(+/- 27.3)
P(697; 204M)	10	.26(+/- 0.18)	256.0(+/- 35.8)
P(802; 201M)	12	.28(+/- 0.18)	266.4(+/- 47.3)
P(696; 175M)	10	.15(+/- 0.07)	252.4(+/- 38.3)
P(803; 157M)	12	.17(+/- 0.07)	252.3(+/- 25.7)
P(695; 571M)	10	.10(+/- 0.17)	239.3(+/- 81.3)
P(804; 570M)	12	.13(+/- 0.15)	255.6(+/- 74.4)
P(795; 200M)	12	.11(+/- 0.08)	345.0(+/- 52.7)
P(691; 109M)	14	.26(+/- 0.09)	25.0(+/- 22.4)
P(793; 80M)	12	.25(+/- 0.10)	24.0(+/- 23.5)
P(789; 200M)	12	.19(+/- 0.08)	29.8(+/- 36.2)
P(692; 145M)	14	.17(+/- 0.10)	29.1(+/- 54.6)
P(794; 153M)	12	.21(+/- 0.06)	27.2(+/- 25.3)
P(693; 200M)	14	.09(+/- 0.06)	25.3(+/- 53.9)
P(792; 200M)	12	.12(+/- 0.07)	29.4(+/- 34.0)
P(694; 600M)	14	.08(+/- 0.06)	352.9(+/- 65.4)
P(791;1007M)	12	.13(+/- 0.23)	269.1(+/- 79.5)
P(790;2480M)	12	.07(+/- 0.14)	328.7(+/- 71.7)
P(1; 17M)	13	.65(+/- 0.60)	110.5(+/- 55.4)
P(796; 360M)	12	.28(+/- 0.07)	99.9(+/- 16.3)
P(3;COAST)	13	.75(+/- 0.32)	330.2(+/- 30.3)
P(780; 183M)	13	.70(+/- 0.20)	332.8(+/- 22.0)
P(781; 98M)	13	.35(+/- 0.13)	316.5(+/- 26.1)
P(820; 402M)	7	.08(+/- 0.05)	240.0(+/- 37.3)

CONSTITUENT MF

STATION	# BLOCKS	AMPLITUDE(MB)	PHASE(DEG)
P(996;COAST)	12	1.16(+/- 2.19)	196.6(+/- 92.9)
P(997;COAST)	12	1.23(+/- 2.35)	186.7(+/- 91.2)
P(998;COAST)	12	1.55(+/- 2.39)	167.0(+/- 85.1)
P(2;COAST)	13	1.07(+/- 1.61)	238.0(+/- 81.1)
P(697; 204M)	10	1.03(+/- 1.53)	172.1(+/- 77.4)
P(802; 201M)	12	1.02(+/- 0.97)	229.8(+/- 62.4)
P(696; 175M)	10	1.22(+/- 1.22)	182.0(+/- 75.6)
P(803; 157M)	12	.86(+/- 0.83)	215.9(+/- 62.1)
P(695; 571M)	10	1.24(+/- 0.99)	197.8(+/- 55.6)
P(804; 570M)	12	1.14(+/- 0.74)	197.4(+/- 58.8)
P(795; 200M)	12	.81(+/- 1.43)	245.1(+/- 75.6)
P(691; 109M)	14	.84(+/- 2.61)	178.0(+/- 86.2)
P(793; 80M)	12	1.18(+/- 1.86)	268.3(+/- 75.9)
P(789; 200M)	12	.81(+/- 1.24)	248.3(+/- 79.0)
P(692; 145M)	14	.90(+/- 1.59)	181.4(+/- 74.8)
P(794; 153M)	12	.80(+/- 1.17)	248.6(+/- 77.5)
P(693; 200M)	14	1.41(+/- 1.32)	186.3(+/- 43.4)
P(792; 200M)	12	.70(+/- 1.30)	244.1(+/- 65.3)
P(694; 600M)	14	1.24(+/- 0.93)	205.8(+/- 54.8)
P(791;1007M)	12	.99(+/- 0.61)	207.0(+/- 50.4)
P(790;2480M)	12	1.04(+/- 0.65)	184.5(+/- 74.8)
P(1; 17M)	13	1.77(+/- 1.66)	269.1(+/- 64.0)
P(796; 360M)	12	1.03(+/- 0.94)	251.3(+/- 73.7)
P(3;COAST)	13	1.18(+/- 1.61)	276.3(+/- 84.0)
P(780; 183M)	13	.91(+/- 1.23)	271.1(+/- 65.8)
P(781; 98M)	13	.59(+/- 1.47)	241.3(+/-103.5)
P(820; 402M)	7	.32(+/- 0.40)	206.6(+/- 83.4)

```
FILTER APPLIED TO 1HR PRESSURE DATA BEFORE DECIMATING TO 6HR

FILTER IS A CARTWRIGHT LOWPASS FILTER OF   97 WEIGHTS
CUTOFF FREQ. IS  .03645833 CPH
AMPLITUDE RESPONSE MARKED BY #
PHASE RESPONSE MARKED BY P

                         POWER PASSED (%)

0........20........40........60........80.......100.  FREQ(CPH)    RESPONSE
<         .         .         .         P        #.   .3174E-02    99.84509
<         .         .         .         P        #.   .4150E-02    99.76126
<         .         .         .         P        #.   .5127E-02    99.68304
<         .         .         .         P        #.   .6104E-02    99.62668
<         .         .         .         P        #.   .7324E-02    99.61452
<         .         .         .         P        #.   .8789E-02    99.71406
<         .         .         .         P        #.   .1025E-01    99.96771
<         .         .         .         P         #   .1196E-01   100.45793
<         .         .         .         P         #   .1392E-01   101.16440
<         .         .         .         P         #   .1611E-01   101.82591
<         .         .         .         P         #   .1880E-01   101.56735
<         .         .         .         P       # .   .2222E-01    97.35880
<         .         .         .         0         .   .2686E-01    80.92726
<         .         #         .         P         .   .3345E-01    41.65040
<#        .         .         .         P         .   .4517E-01     2.49307
#         .         .         .         P         .   .6860E-01      .00029
#         .         .         .         P         .   .1155E+00      .00000
#         .         .         .         P         .   .2092E+00      .00000
#         .         .         .         P         .   .3857E+00      .00000
-180...-135 ......-90 ......-45.........0........45.
```

Figure 11. Filter applied to 1 hour/pressure data before decimating to a 6 hour sampling interval.

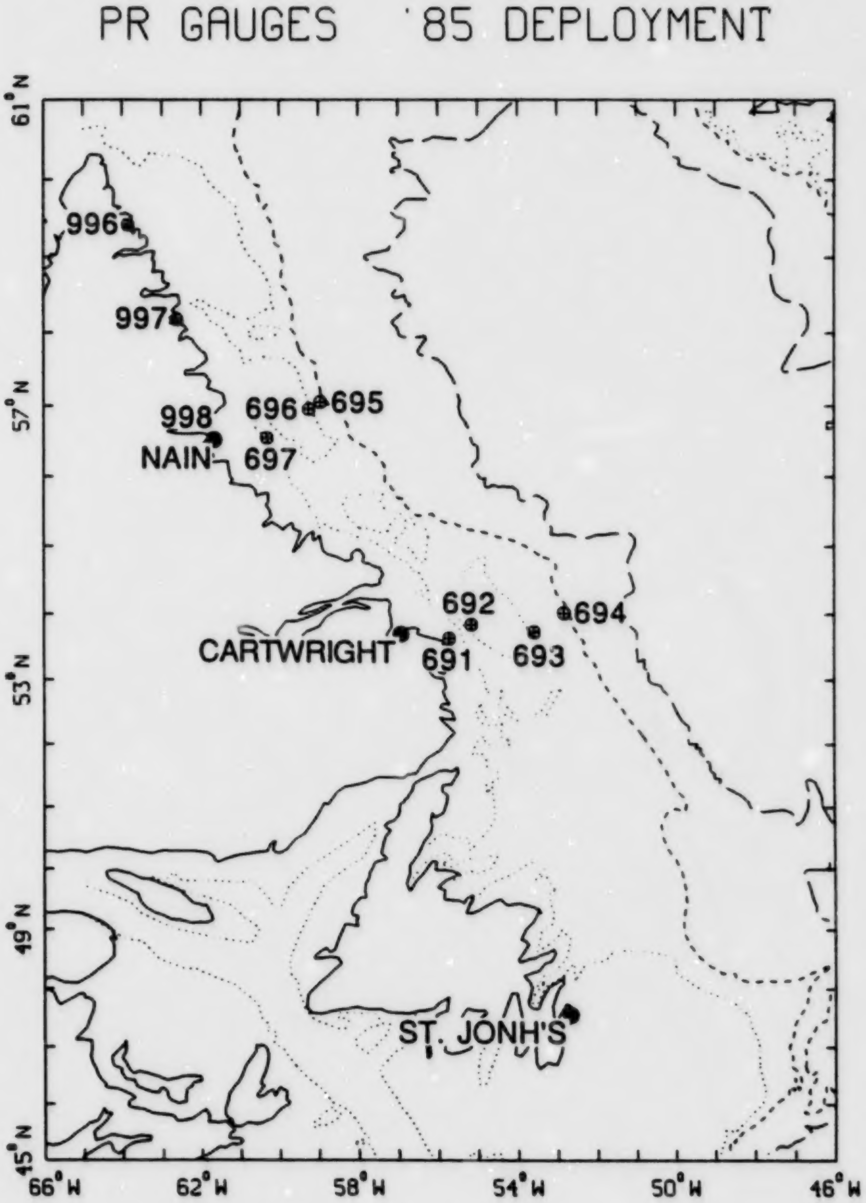
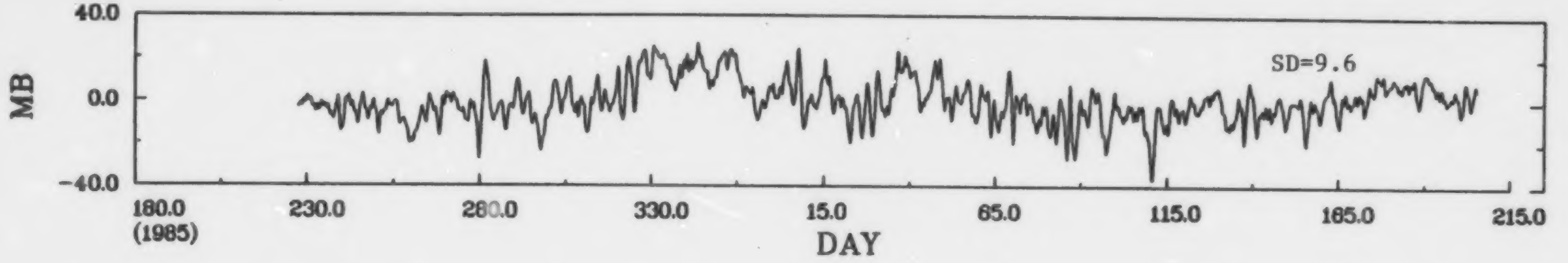
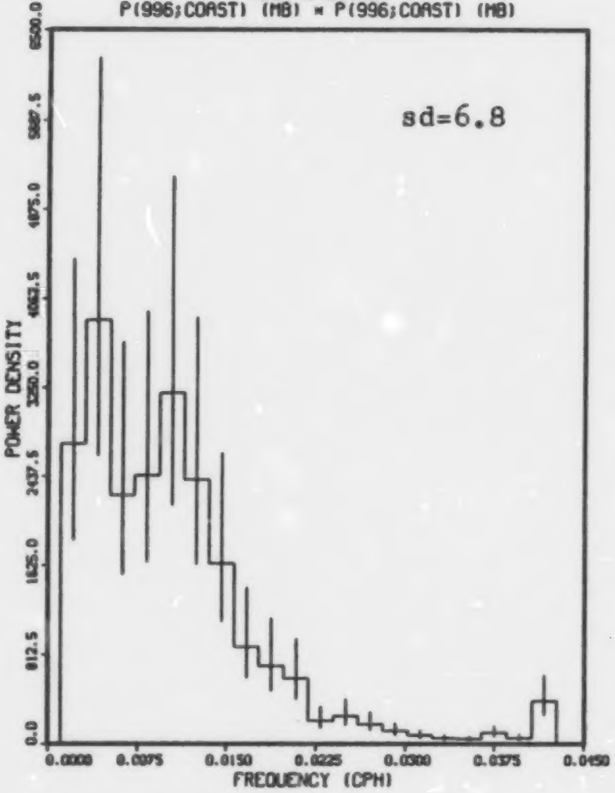

PR GAUGES '85 DEPLOYMENT
996
997
998
696
695
697
NAIN
692
694
CARTWRIGHT
691
693
ST. JONH'S
61°N
57°N
53°N
49°N
45°N
66°W
62°W
58°W
54°W
50°W
46°W

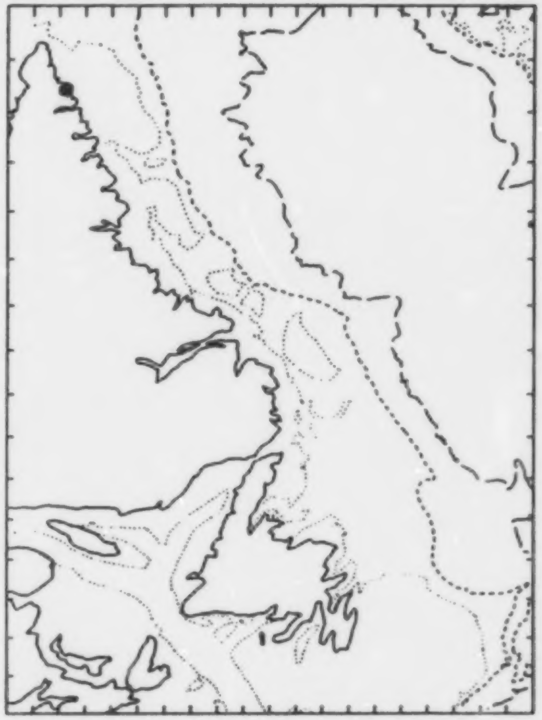
Figure 12. Location map for pressure gauges moored over the shelf during the 1985/86 field year. Isobaths are indicated by (·····) 200 m, (- - - -) 1000 m and (— —) 3000m.

P(996;COAST) - RESIDUALS
POSITION 59.420 N 63.850 W



AUTO-SPECTRUM
P(996;COAST) (MB) * P(996;COAST) (MB)





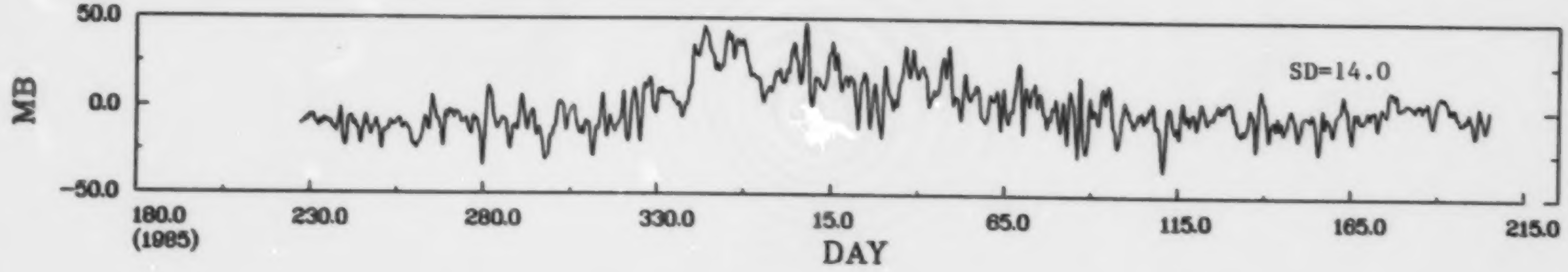
```
HISTOGRAM OF P(996;COAST)      TIDAL RESIDUALS  (MB)
 BROWNELL POINT
 CRUISE          0.   STATION       996.    LAT   59.4200    LONG   63.8500
 INSTRUMENT                 BOTTOM DEPTH    0.0 METRES
 SAMPLED EACH     3600. SECS      START TIME   1: 0: 0 Z    15/ 8/1985

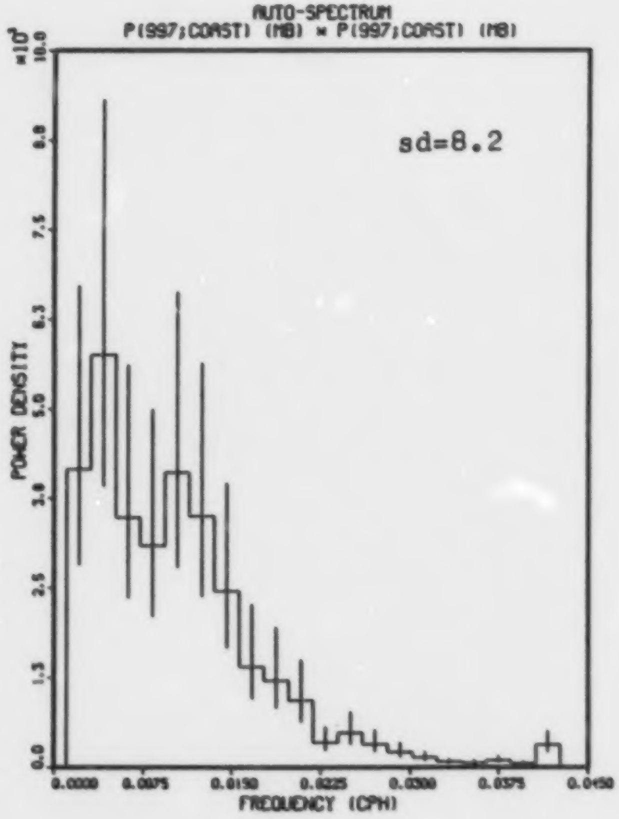
TOTAL NO. OF SAMPLES   8241
NO. OUT OF RANGE          0

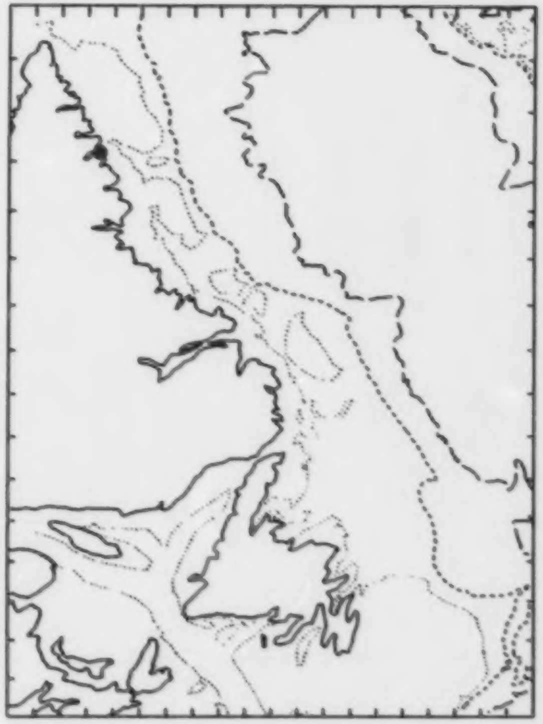
        BAND         NUMBER  PER
                             CENT

    (-38.0, -36.0)      8     .1
    (-36.0, -34.0)      4     .0
    (-34.0, -32.0)      4     .0
    (-32.0, -30.0)      3     .0
    (-30.0, -28.0)      5     .1
    (-28.0, -26.0)     23     .3 *
    (-26.0, -24.0)     20     .2 *
    (-24.0, -22.0)     31     .4 **
    (-22.0, -20.0)     37     .4 **
    (-20.0, -18.0)     95    1.2 *****
    (-18.0, -16.0)    124    1.5 *******
    (-16.0, -14.0)    193    2.3 ***********
    (-14.0, -12.0)    199    2.4 ***********
    (-12.0, -10.0)    278    3.4 ***************
    (-10.0,  -8.0)    427    5.2 ************************
    ( -8.0,  -6.0)    487    5.9 ***************************
    ( -6.0,  -4.0)    719    8.7 ****************************************
    ( -4.0,  -2.0)    888   10.8 ************************************************
    ( -2.0,   0.0)    869   10.5 ************************************************
    (  0.0,   2.0)    730    8.9 *****************************************
    (  2.0,   4.0)    635    7.7 ***********************************
    (  4.0,   6.0)    451    5.5 *************************
    (  6.0,   8.0)    380    4.6 *********************
    (  8.0,  10.0)    372    4.5 *********************
    ( 10.0,  12.0)    284    3.4 ****************
    ( 12.0,  14.0)    238    2.9 *************
    ( 14.0,  16.0)    166    2.0 *********
    ( 16.0,  18.0)    134    1.6 *******
    ( 18.0,  20.0)    162    2.0 *********
    ( 20.0,  22.0)    145    1.8 ********
    ( 22.0,  24.0)    193    1.2 ******
    ( 24.0,  26.0)     21     .3 *
    ( 26.0,  28.0)      6     .1
```

P(997;COAST) - RESIDUALS
POSITION 58.180 N 62.620 W







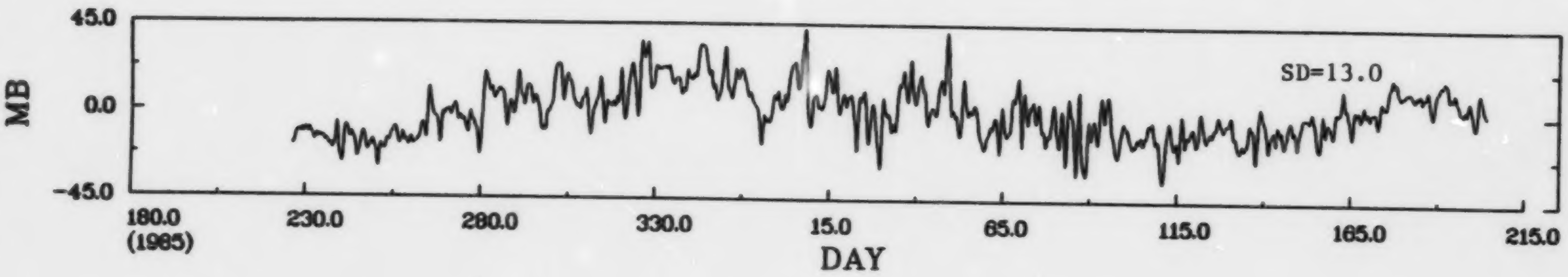
```
HISTOGRAM OF P(997;COAST)      TIDAL RESIDUALS  (MB)
 HEBRON
 CRUISE        0.   STATION      997.    LAT   58.1800    LONG   62.6200
 INSTRUMENT               BOTTOM DEPTH    0.0 METRES
 SAMPLED EACH      3600. SECS      START TIME   1: 0: 0 Z   15/ 8/1985

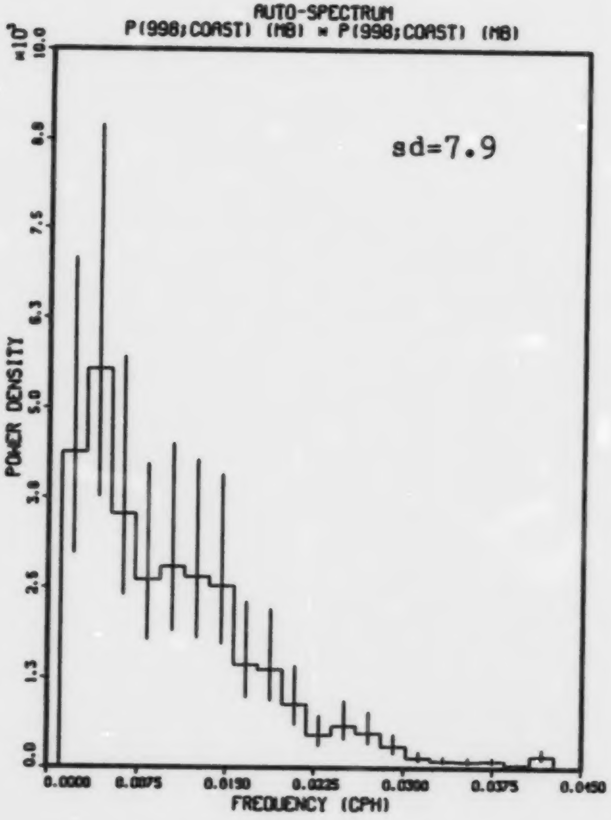
TOTAL NO. OF SAMPLES   8235
NO. OUT OF RANGE          0

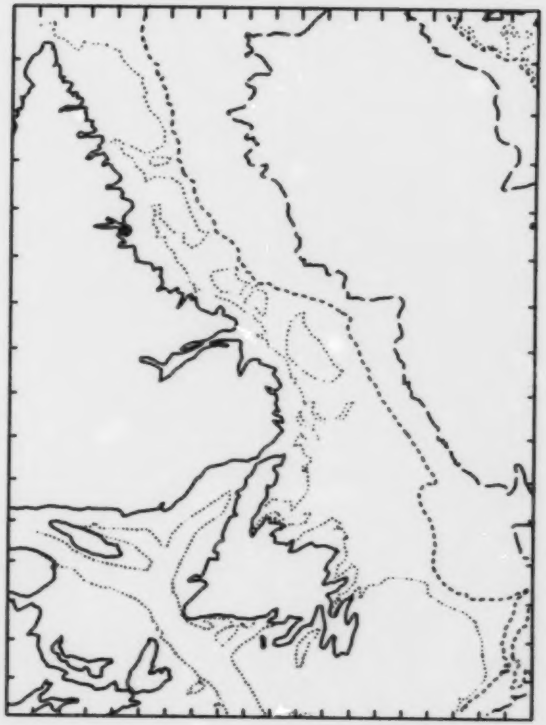
        BAND         NUMBER  PER
                             CENT


    (-36.0, -34.0)      12     .1 •
    (-34.0, -32.0)       9     .1 •
    (-32.0, -30.0)      11     .1 •
    (-30.0, -28.0)      27     .3 ••
    (-28.0, -26.0)      37     .4 •••
    (-26.0, -24.0)      38     .5 •••
    (-24.0, -22.0)      80    1.0 ••••••
    (-22.0, -20.0)     121    1.5 •••••••••
    (-20.0, -18.0)     111    1.3 ••••••••
    (-18.0, -16.0)     141    1.7 ••••••••••
    (-16.0, -14.0)     232    2.8 •••••••••••••••••
    (-14.0, -12.0)     427    5.2 ••••••••••••••••••••••••••••••
    (-12.0, -10.0)     536    6.5 ••••••••••••••••••••••••••••••••••••••
    (-10.0,  -8.0)     557    6.8 ••••••••••••••••••••••••••••••••••••••••
    ( -8.0,  -6.0)     644    7.8 ••••••••••••••••••••••••••••••••••••••••••••••
    ( -6.0,  -4.0)     600    7.3 •••••••••••••••••••••••••••••••••••••••••••
    ( -4.0,  -2.0)     529    6.4 ••••••••••••••••••••••••••••••••••••••
    ( -2.0,   0.0)     481    5.8 ••••••••••••••••••••••••••••••••••
    (  0.0,   2.0)     451    5.5 ••••••••••••••••••••••••••••••••
    (  2.0,   4.0)     454    5.5 ••••••••••••••••••••••••••••••••
    (  4.0,   6.0)     340    4.1 ••••••••••••••••••••••••
    (  6.0,   8.0)     292    3.5 •••••••••••••••••••••
    (  8.0,  10.0)     325    3.9 •••••••••••••••••••••••
    ( 10.0,  12.0)     276    3.4 ••••••••••••••••••••
    ( 12.0,  14.0)     181    2.2 •••••••••••••
    ( 14.0,  16.0)     166    2.0 ••••••••••••
    ( 16.0,  18.0)     177    2.1 •••••••••••••
    ( 18.0,  20.0)     138    1.7 ••••••••••
    ( 20.0,  22.0)     128    1.6 •••••••••
    ( 22.0,  24.0)      95    1.2 •••••••
    ( 24.0,  26.0)      83    1.0 ••••••
    ( 26.0,  28.0)      57     .7 ••••
    ( 28.0,  30.0)      75     .9 •••••
    ( 30.0,  32.0)      86    1.0 ••••••
    ( 32.0,  34.0)      63     .8 ••••
    ( 34.0,  36.0)      68     .8 •••••
    ( 36.0,  38.0)      55     .7 ••••
    ( 38.0,  40.0)      48     .6 •••
    ( 40.0,  42.0)      33     .4 ••
    ( 42.0,  44.0)      26     .3 ••
    ( 44.0,  46.0)      16     .2 •
    ( 46.0,  48.0)       9     .1 •
```

P(998;COAST) - RESIDUALS
POSITION 56.550 N 61.680 W







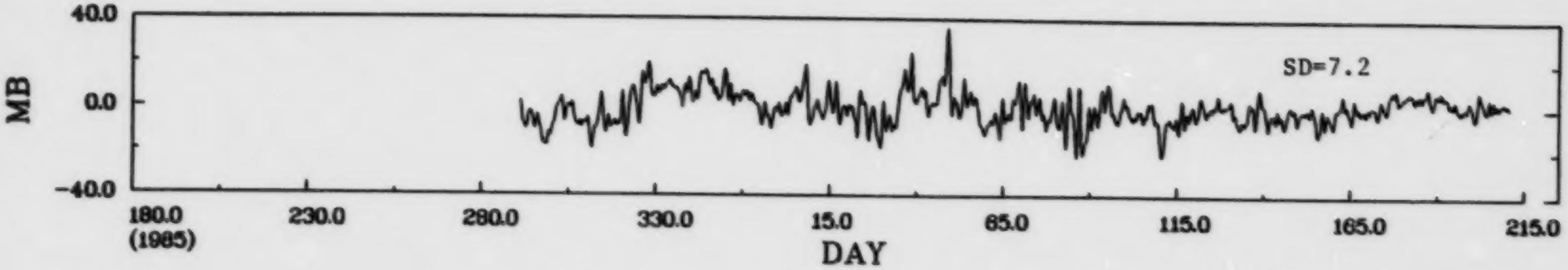
```
HISTOGRAM OF P(998;COAST)       TIDAL RESIDUALS  (MB)
 NAIN
 CRUISE        0.   STATION      998.     LAT   56.5500     LONG   61.6800
 INSTRUMENT                BOTTOM DEPTH    0.0 METRES
 SAMPLED EACH      3600. SECS      START TIME   1: 0: 0 Z   14/ 8/1985

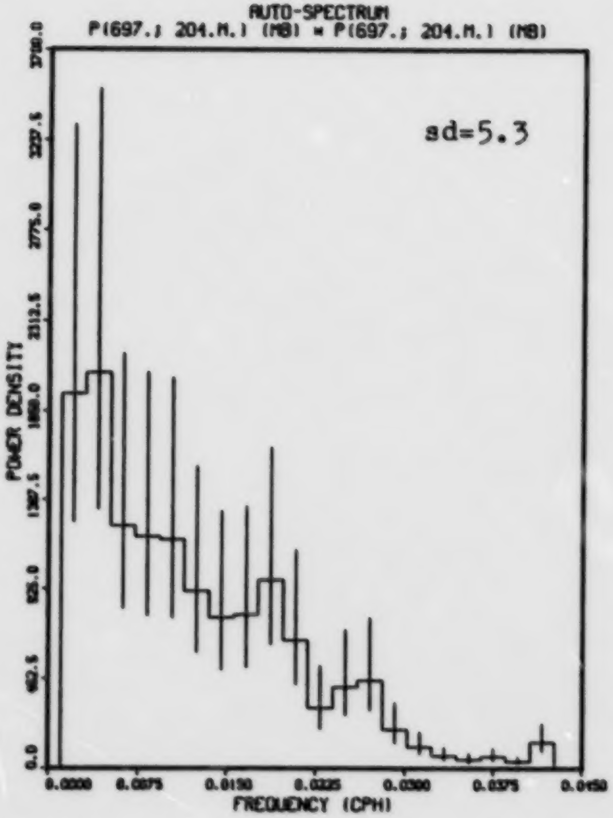
TOTAL NO. OF SAMPLES   8239
NO. OUT OF RANGE          0

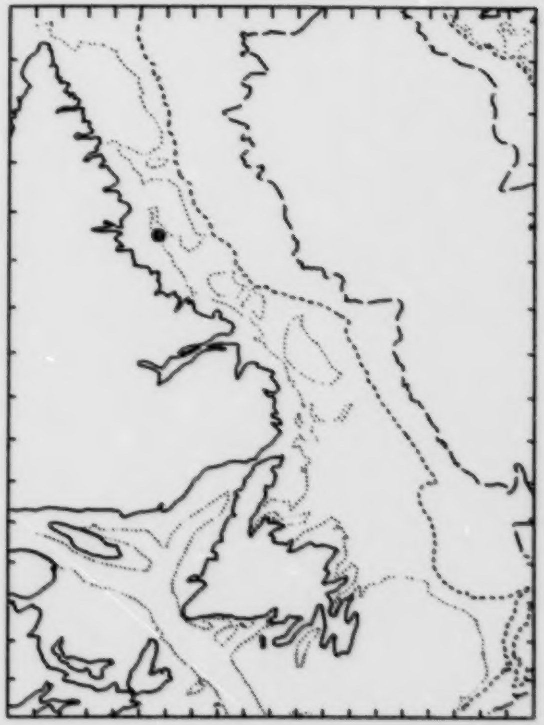
        BAND         NUMBER  PER
                             CENT


    (-36.0, -34.0)       8     .1 *
    (-34.0, -32.0)       8     .1 *
    (-32.0, -30.0)      22     .3 **
    (-30.0, -28.0)      33     .4 ***
    (-28.0, -26.0)      31     .4 ***
    (-26.0, -24.0)      45     .5 ****
    (-24.0, -22.0)      53     .6 ****
    (-22.0, -20.0)      91    1.1 ********
    (-20.0, -18.0)     167    2.0 **************
    (-18.0, -16.0)     353    4.3 *****************************
    (-16.0, -14.0)     407    4.9 **********************************
    (-14.0, -12.0)     380    4.6 ********************************
    (-12.0, -10.0)     474    5.8 ***************************************
    (-10.0,  -8.0)     416    5.0 ***********************************
    ( -8.0,  -6.0)     395    4.8 *********************************
    ( -6.0,  -4.0)     422    5.1 ***********************************
    ( -4.0,  -2.0)     388    4.7 ********************************
    ( -2.0,   0.0)     442    5.4 *************************************
    (  0.0,   2.0)     425    5.2 ***********************************
    (  2.0,   4.0)     546    6.6 *********************************************
    (  4.0,   6.0)     395    4.8 *********************************
    (  6.0,   8.0)     375    4.6 *******************************
    (  8.0,  10.0)     423    5.1 ***********************************
    ( 10.0,  12.0)     387    4.7 ********************************
    ( 12.0,  14.0)     306    3.7 *************************
    ( 14.0,  16.0)     200    2.4 *****************
    ( 16.0,  18.0)     283    3.4 ************************
    ( 18.0,  20.0)     189    2.3 ****************
    ( 20.0,  22.0)     150    1.8 ************
    ( 22.0,  24.0)     178    2.2 ***************
    ( 24.0,  26.0)      48     .6 ****
    ( 26.0,  28.0)      29     .4 **
    ( 28.0,  30.0)      29     .4 **
    ( 30.0,  32.0)      24     .3 **
    ( 32.0,  34.0)      56     .7 *****
    ( 34.0,  36.0)      30     .4 **
    ( 36.0,  38.0)       7     .1 *
    ( 38.0,  40.0)       7     .1 *
    ( 40.0,  42.0)       8     .1 *
    ( 42.0,  44.0)       9     .1 *
```

P(697; 204M) - RESIDUALS
POSITION 56.550 N 60.319 W







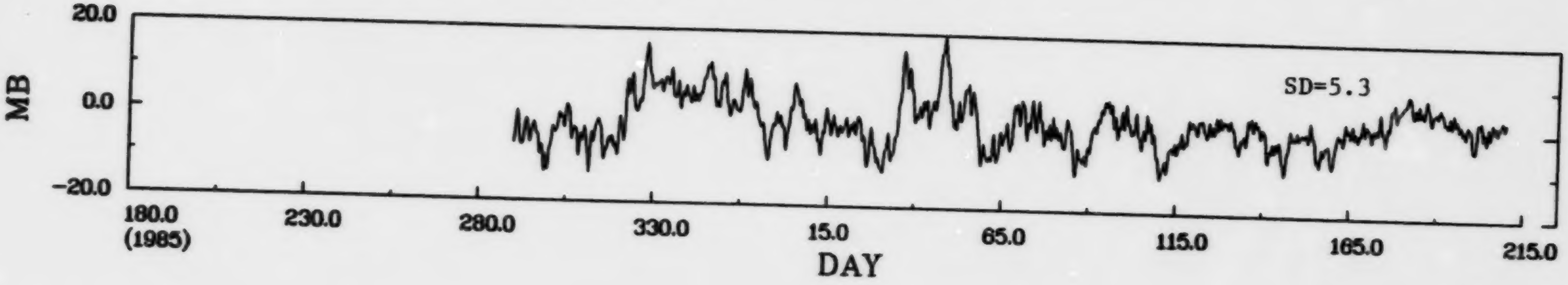
```
HISTOGRAM OF P(697; 204M)      TIDAL RESIDUALS  (MB)
 NAIN BANK
 CRUISE    85029.   STATION      697.    LAT   56.5495    LONG   60.3187
 INSTRUMENT                BOTTOM DEPTH  203.7 METRES
 SAMPLED EACH     3600. SECS      START TIME   1: 0: 0 Z   18/10/1985

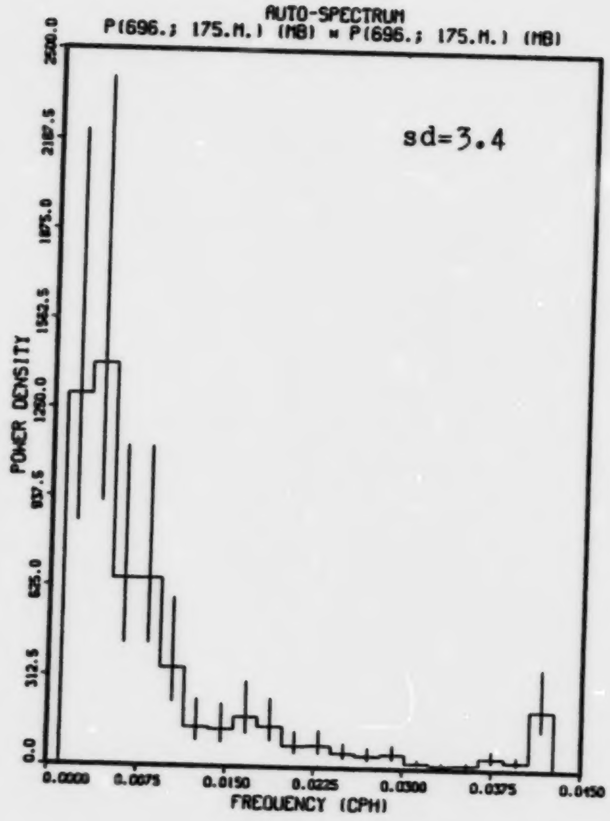
TOTAL NO. OF SAMPLES   6838
NO. OUT OF RANGE          0

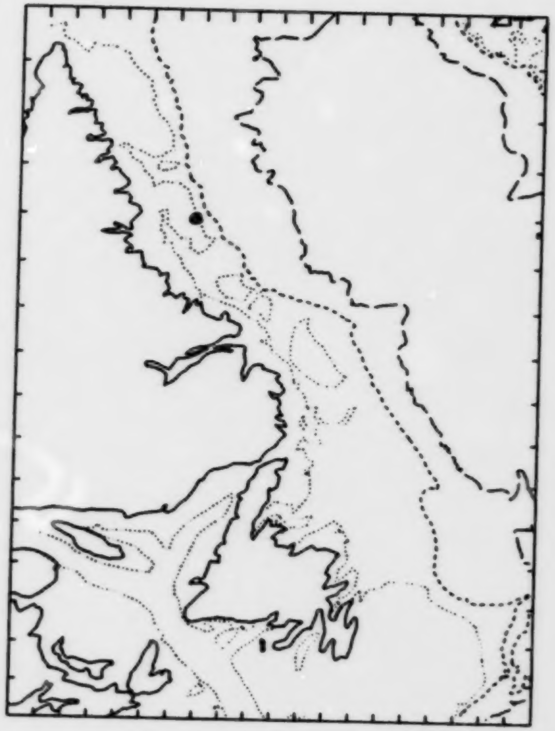

        BAND          NUMBER  PER
                              CENT


    (-24.0, -22.0)       3     .0
    (-22.0, -20.0)      30     .4 *
    (-20.0, -18.0)      36     .5 **
    (-18.0, -16.0)      64     .9 ***
    (-16.0, -14.0)      67    1.0 ***
    (-14.0, -12.0)      91    1.3 *****
    (-12.0, -10.0)     142    2.1 *******
    (-10.0,  -8.0)     364    5.3 ******************
    ( -8.0,  -6.0)     562    8.2 ****************************
    ( -6.0,  -4.0)     558    8.2 ****************************
    ( -4.0,  -2.0)     696   10.2 ***********************************
    ( -2.0,   0.0)     726   10.6 ************************************
    (  0.0,   2.0)     924   13.5 **********************************************
    (  2.0,   4.0)     689   10.1 **********************************
    (  4.0,   6.0)     621    9.1 *******************************
    (  6.0,   8.0)     471    6.9 ************************
    (  8.0,  10.0)     324    4.7 ****************
    ( 10.0,  12.0)     171    2.5 *********
    ( 12.0,  14.0)     105    1.5 *****
    ( 14.0,  16.0)      85    1.2 ****
    ( 16.0,  18.0)      48     .7 **
    ( 18.0,  20.0)      22     .3 *
    ( 20.0,  22.0)       8     .1
    ( 22.0,  24.0)       6     .1
    ( 24.0,  26.0)       7     .1
    ( 26.0,  28.0)       2     .0
    ( 28.0,  30.0)       2     .0
    ( 30.0,  32.0)       3     .0
    ( 32.0,  34.0)       3     .0
    ( 34.0,  36.0)       6     .1
    ( 36.0,  38.0)       2     .0
```

P(696; 175M) - RESIDUALS
POSITION 56.950 N 59.265 W







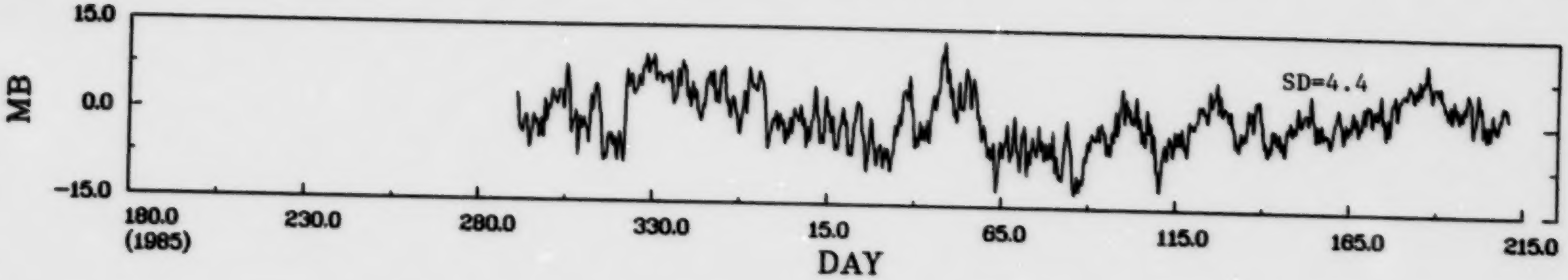
```
HISTOGRAM OF P(696; 175M)      TIDAL RESIDUALS  (MB)
 NAIN BANK
 CRUISE    85029.   STATION      696.     LAT   56.9500     LONG   59.2648
 INSTRUMENT              BOTTOM DEPTH  174.9 METRES
 SAMPLED EACH     3600. SECS      START TIME   1: 0: 0 Z   17/10/1985

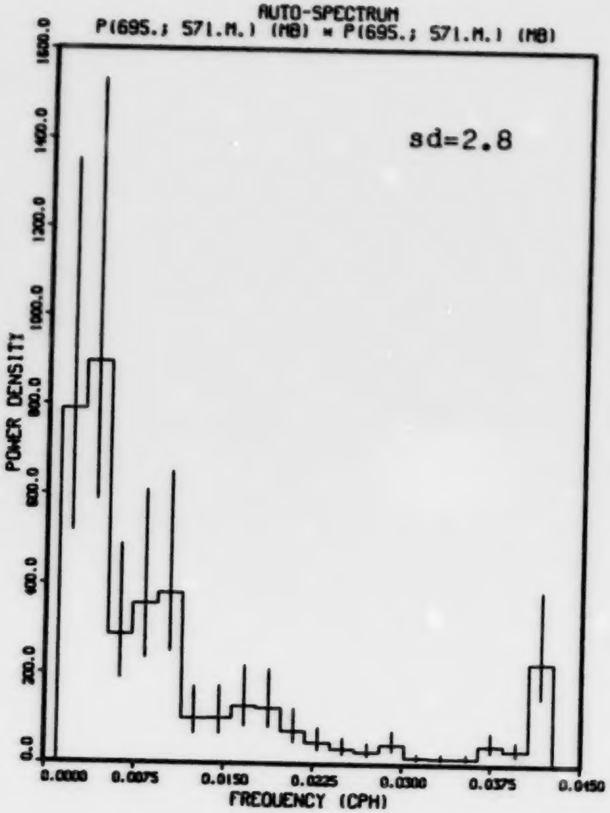
TOTAL NO. OF SAMPLES   6849
NO. OUT OF RANGE          0

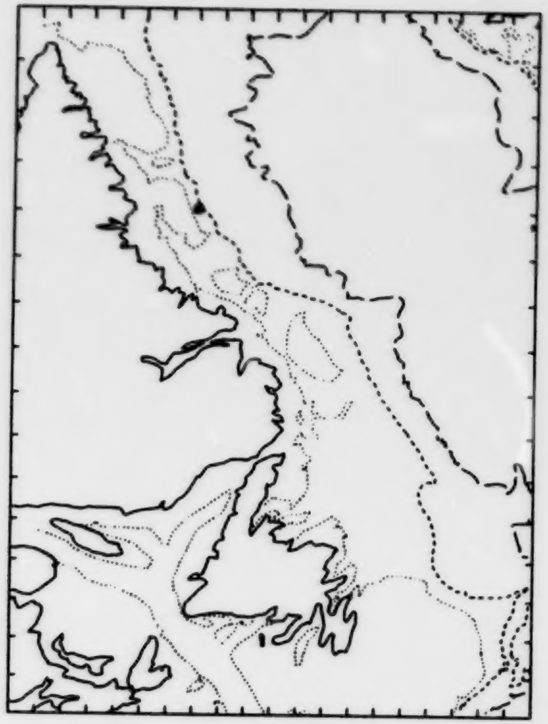
        BAND        NUMBER  PER
                            CENT


    (-14.0, -12.0)      29     .4 *
    (-12.0, -10.0)     122    1.8 *****
    (-10.0,  -8.0)     288    4.2 ************
    ( -8.0,  -6.0)     435    6.4 ******************
    ( -6.0,  -4.0)     600    8.8 *************************
    ( -4.0,  -2.0)     865   12.6 ************************************
    ( -2.0,   0.0)    1143   16.7 ************************************************
    (  0.0,   2.0)    1115   16.3 **********************************************
    (  2.0,   4.0)     766   11.2 ********************************
    (  4.0,   6.0)     675    9.9 ****************************
    (  6.0,   8.0)     360    5.3 ***************
    (  8.0,  10.0)     235    3.4 **********
    ( 10.0,  12.0)      88    1.3 ****
    ( 12.0,  14.0)      55     .8 **
    ( 14.0,  16.0)      36     .5 *
    ( 16.0,  18.0)      25     .4 *
    ( 18.0,  20.0)      12     .2
```

P(695; 571M) - RESIDUALS
POSITION 57.049 N 58.959 W







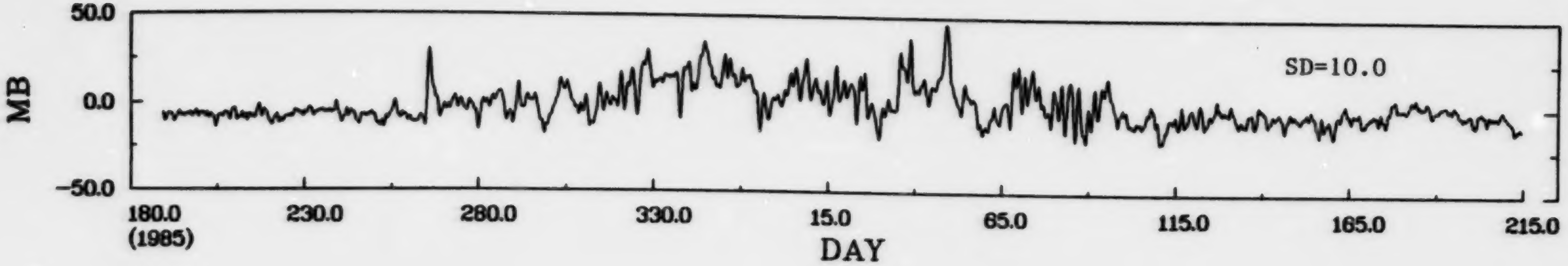
```
HISTOGRAM OF P(695; 571M)      TIDAL RESIDUALS  (MB)
 NAIN BANK
 CRUISE    85029.   STATION       695.     LAT   57.0492     LONG   58.9585
 INSTRUMENT                BOTTOM DEPTH  570.7 METRES
 SAMPLED EACH      3600. SECS       START TIME   1: 0: 0 Z    18/10/1985

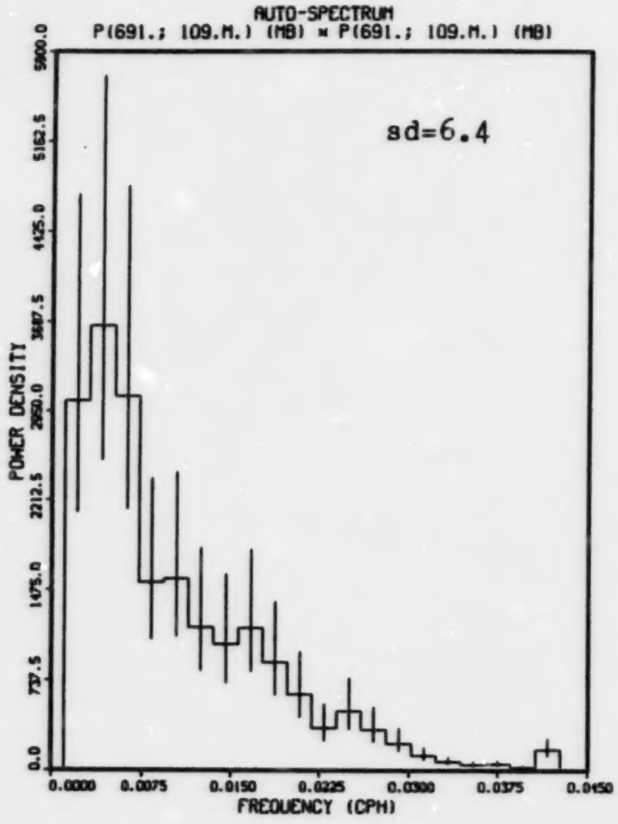
TOTAL NO. OF SAMPLES   6835
NO. OUT OF RANGE          0

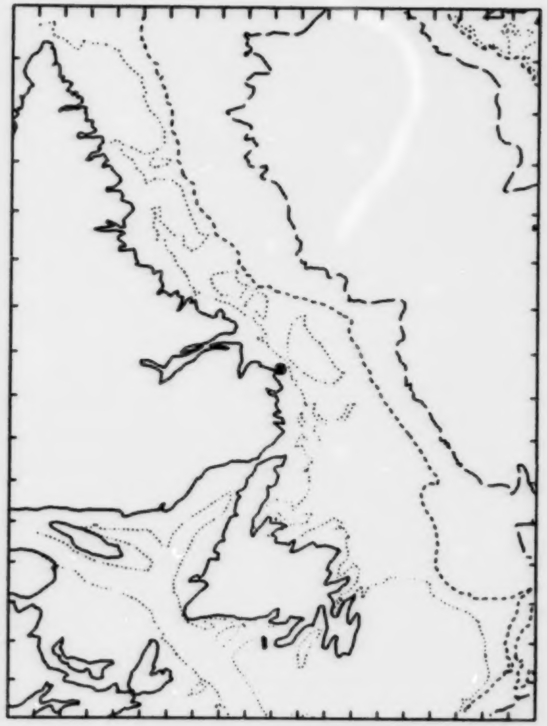

          BAND           NUMBER  PER
                                 CENT


     (-14.0, -12.0)        23      .3 *
     (-12.0, -10.0)        75     1.1 ***
     (-10.0,  -8.0)       155     2.3 ******
     ( -8.0,  -6.0)       337     4.9 **************
     ( -6.0,  -4.0)       716    10.5 ******************************
     ( -4.0,  -2.0)       969    14.2 ****************************************
     ( -2.0,   0.0)      1200    17.6 ************************************************
     (  0.0,   2.0)      1132    16.6 ***********************************************
     (  2.0,   4.0)       891    13.0 *************************************
     (  4.0,   6.0)       691    10.1 *****************************
     (  6.0,   8.0)       486     7.1 ********************
     (  8.0,  10.0)       120     1.8 *****
     ( 10.0,  12.0)        32      .5 *
     ( 12.0,  14.0)         8      .1
```

P(691; 109M) - RESIDUALS
POSITION 53.632 N 55.745 W







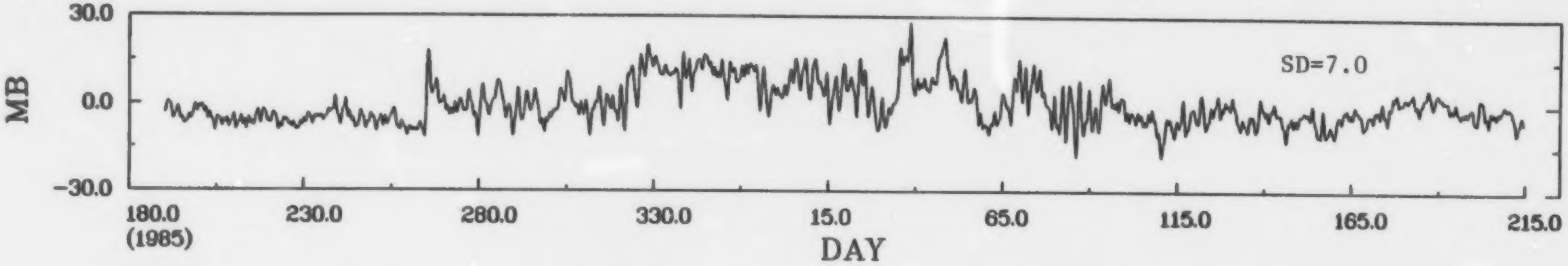
```
HISTOGRAM OF P(691: 109M)      TIDAL RESIDUALS  (MB)
 HAMILTON BANK
 CRUISE    85018.   STATION       691.     LAT   53.6323    LONG   55.7445
 INSTRUMENT                BOTTOM DEPTH  109.0 METRES
 SAMPLED EACH     3600. SECS      START TIME   1: 0: 0 Z    8/ 7/1985

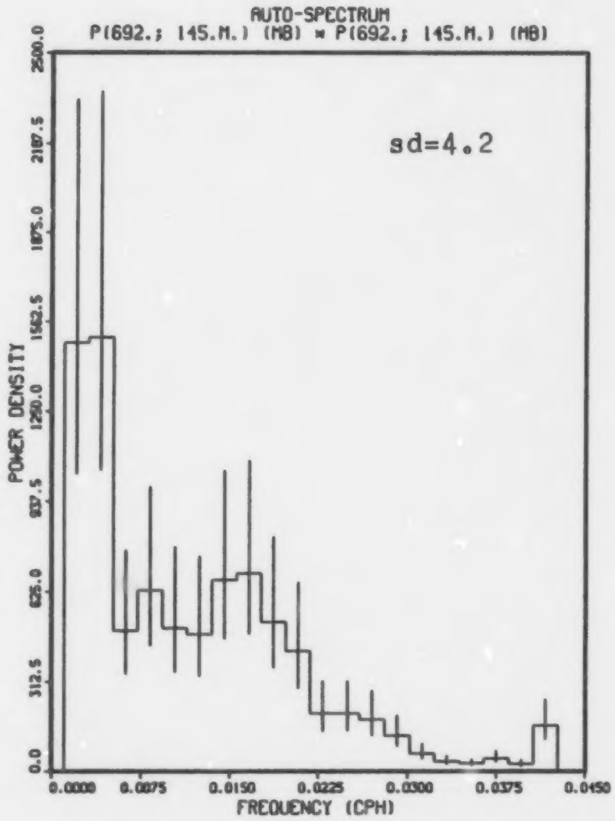
TOTAL NO. OF SAMPLES   9374
NO. OUT OF RANGE          0

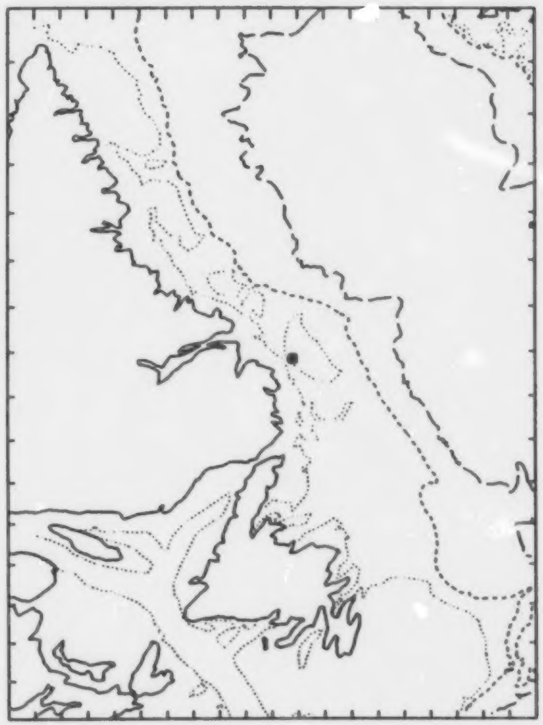
        BAND         NUMBER  PER
                             CENT


    (-22.0, -20.0)      8     .1
    (-20.0, -18.0)     46     .5 **
    (-18.0, -16.0)     40     .4 **
    (-16.0, -14.0)    101    1.1 ****
    (-14.0, -12.0)    211    2.3 *********
    (-12.0, -10.0)    548    5.8 ***********************
    (-10.0,  -8.0)    854    9.1 ************************************
    ( -8.0,  -6.0)   1111   11.9 ***********************************************
    ( -6.0,  -4.0)   1073   11.4 **********************************************
    ( -4.0,  -2.0)    964   10.3 *****************************************
    ( -2.0,   0.0)    705    7.5 ******************************
    (  0.0,   2.0)    619    6.6 **************************
    (  2.0,   4.0)    510    5.4 **********************
    (  4.0,   6.0)    367    3.9 ****************
    (  6.0,   8.0)    274    2.9 ************
    (  8.0,  10.0)    294    3.1 *************
    ( 10.0,  12.0)    321    3.4 **************
    ( 12.0,  14.0)    296    3.2 *************
    ( 14.0,  16.0)    284    3.0 ************
    ( 16.0,  18.0)    199    2.1 ********
    ( 18.0,  20.0)    115    1.2 *****
    ( 20.0,  22.0)    124    1.3 *****
    ( 22.0,  24.0)     91    1.0 ****
    ( 24.0,  26.0)     41     .4 **
    ( 26.0,  28.0)     51     .5 **
    ( 28.0,  30.0)     34     .4 *
    ( 30.0,  32.0)     31     .3 *
    ( 32.0,  34.0)     11     .1
    ( 34.0,  36.0)     13     .1 *
    ( 36.0,  38.0)      9     .1
    ( 38.0,  40.0)      5     .1
    ( 40.0,  42.0)      4     .0
    ( 42.0,  44.0)      5     .1
    ( 44.0,  46.0)      7     .1
    ( 46.0,  48.0)      8     .1
```

P(692; 145M) - RESIDUALS
POSITION 53.842 N 55.182 W







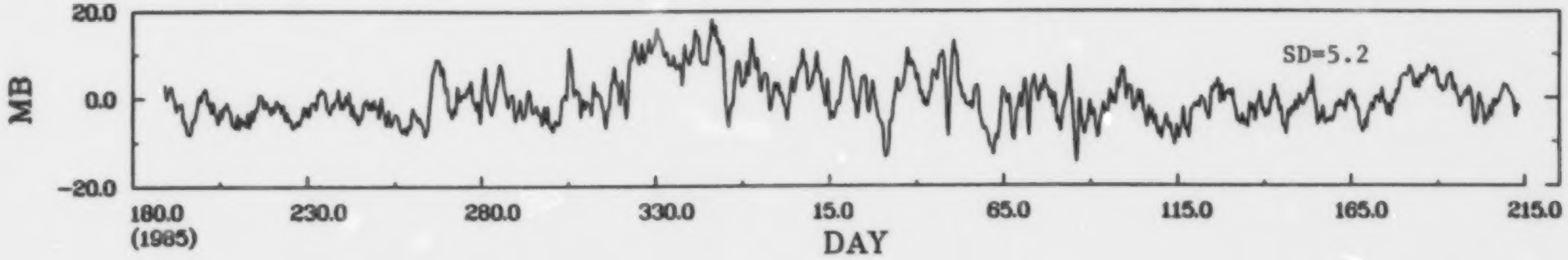
```
HISTOGRAM OF P(692; 145M)      TIDAL RESIDUALS  (MB)
 HAMILTON BANK
 CRUISE    85018.   STATION      692.     LAT   53.8420     LONG   55.1823
 INSTRUMENT                BOTTOM DEPTH  145.0 METRES
 SAMPLED EACH     3600. SECS      START TIME   1: 0: 0 Z    9/ 7/1985

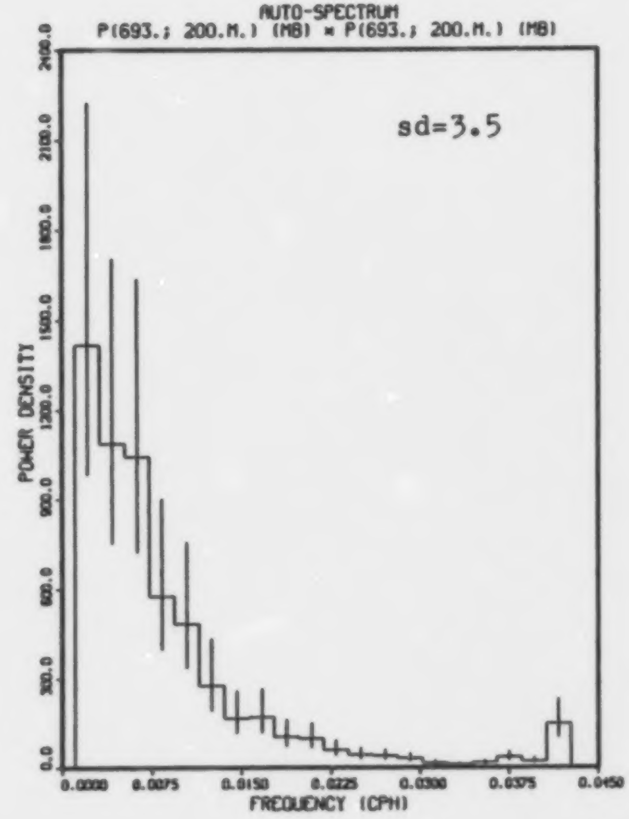
TOTAL NO. OF SAMPLES   9357
NO. OUT OF RANGE          0

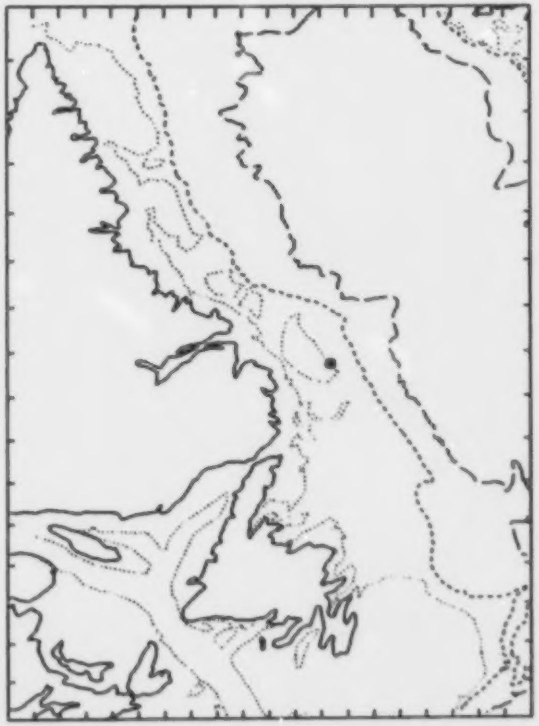
        BAND         NUMBER  PER
                             CENT


    (-20.0, -18.0)       5     .1
    (-18.0, -16.0)      17     .2 •
    (-16.0, -14.0)      11     .1
    (-14.0, -12.0)      28     .3 •
    (-12.0, -10.0)     169    1.8 ••••••
    (-10.0,  -8.0)     548    5.9 ••••••••••••••••••••
    ( -8.0,  -6.0)    1013   10.8 ••••••••••••••••••••••••••••••••••••
    ( -6.0,  -4.0)    1260   13.5 •••••••••••••••••••••••••••••••••••••••••••••
    ( -4.0,  -2.0)    1349   14.4 ••••••••••••••••••••••••••••••••••••••••••••••••
    ( -2.0,   0.0)    1100   11.8 •••••••••••••••••••••••••••••••••••••••
    (  0.0,   2.0)     821    8.8 •••••••••••••••••••••••••••••
    (  2.0,   4.0)     640    6.8 •••••••••••••••••••••••
    (  4.0,   6.0)     520    5.6 •••••••••••••••••••
    (  6.0,   8.0)     380    4.1 ••••••••••••••
    (  8.0,  10.0)     372    4.0 •••••••••••••
    ( 10.0,  12.0)     383    4.1 ••••••••••••••
    ( 12.0,  14.0)     334    3.6 ••••••••••••
    ( 14.0,  16.0)     215    2.3 ••••••••
    ( 16.0,  18.0)     111    1.2 ••••
    ( 18.0,  20.0)      37     .4 •
    ( 20.0,  22.0)      20     .2 •
    ( 22.0,  24.0)      12     .1
    ( 24.0,  26.0)       3     .0
    ( 26.0,  28.0)       6     .1
    ( 28.0,  30.0)       3     .0
```

P(693; 200M) - RESIDUALS
POSITION 53.727 N 53.613 W







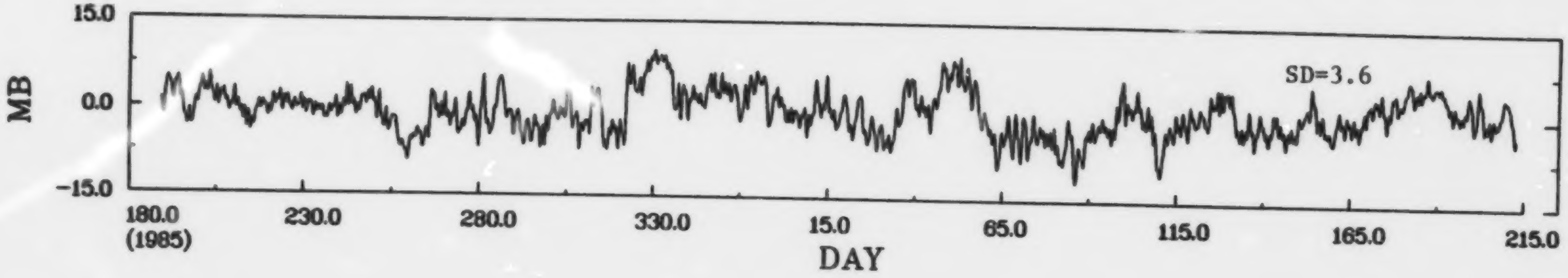
```
HISTOGRAM OF P(693; 200M)      TIDAL RESIDUALS  (MB)
 HAMILTON BANK
 CRUISE    85018.   STATION      693.    LAT   53.7267    LONG   53.6127
 INSTRUMENT             BOTTOM DEPTH  200.0 METRES
 SAMPLED EACH     3600. SECS      START TIME   1: 0: 0 Z    8/ 7/1985

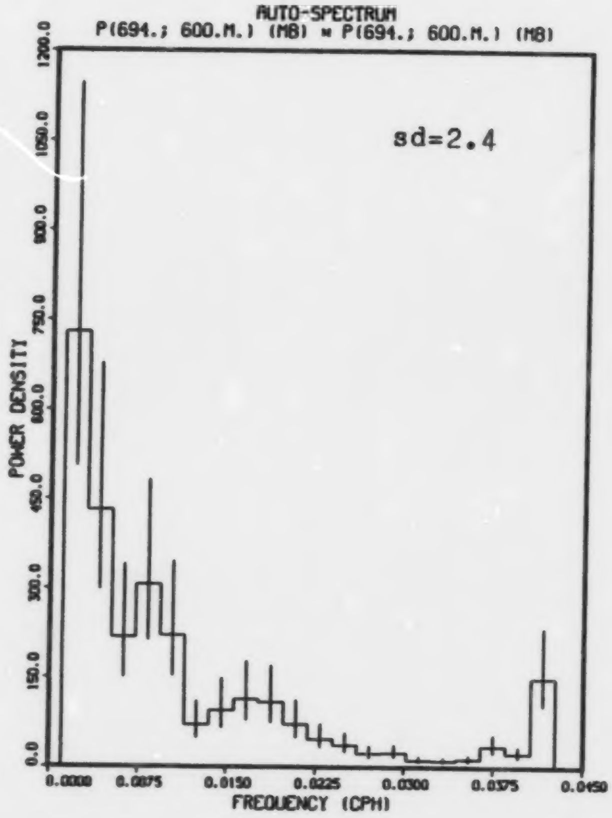
TOTAL NO. OF SAMPLES   9352
NO. OUT OF RANGE          0

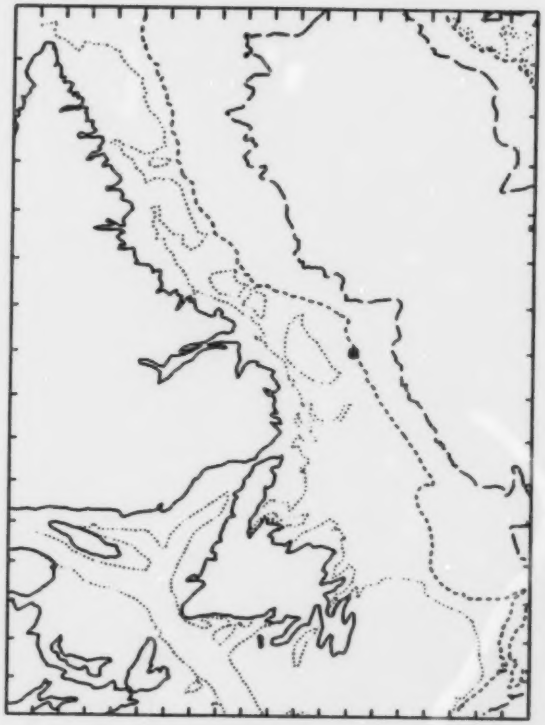

        BAND         NUMBER  PER
                             CENT


    (-16.0, -14.0)       9     .1
    (-14.0, -12.0)      45     .5 *
    (-12.0, -10.0)      52     .6 *
    (-10.0,  -8.0)     207    2.2 ******
    ( -8.0,  -6.0)     585    6.3 ****************
    ( -6.0,  -4.0)    1144   12.2 ********************************
    ( -4.0,  -2.0)    1467   15.7 *****************************************
    ( -2.0,   0.0)    1718   18.4 ************************************************
    (  0.0,   2.0)    1310   14.0 ************************************
    (  2.0,   4.0)     899    9.6 *************************
    (  4.0,   6.0)     584    6.2 ****************
    (  6.0,   8.0)     501    5.4 **************
    (  8.0,  10.0)     353    3.8 **********
    ( 10.0,  12.0)     218    2.3 ******
    ( 12.0,  14.0)     171    1.8 *****
    ( 14.0,  16.0)      59     .6 **
    ( 16.0,  18.0)      25     .3 *
    ( 18.0,  20.0)       5     .1
```

P(694; 600M) - RESIDUALS
POSITION 54.011 N 52.855 W







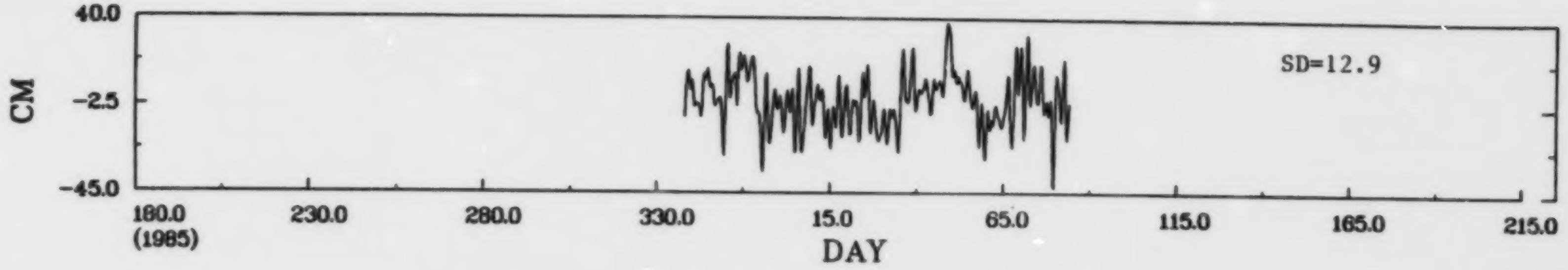
```
HISTOGRAM OF P(694; 600M)      TIDAL RESIDUALS  (MB)
 HAMILTON BANK
 CRUISE    85018.   STATION       694.    LAT   54.0109    LONG   52.8549
 INSTRUMENT                BOTTOM DEPTH  600.0 METRES
 SAMPLED EACH      3600. SECS      START TIME   1: 0: 0 Z    8/ 7/1985

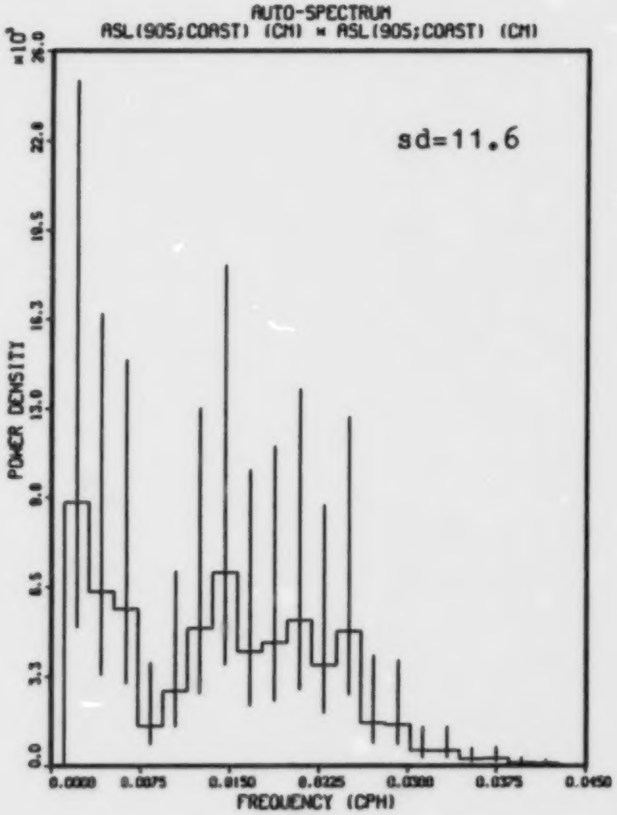
TOTAL NO. OF SAMPLES   9335
NO. OUT OF RANGE          0

       BAND          NUMBER  PER
                             CENT

    (-12.0, -10.0)      27     .3 *
    (-10.0,  -8.0)     108    1.2 ***
    ( -8.0,  -6.0)     298    3.2 *******
    ( -6.0,  -4.0)     768    8.2 ******************
    ( -4.0,  -2.0)    1494   16.0 ************************************
    ( -2.0,   0.0)    2038   21.8 *************************************************
    (  0.0,   2.0)    1982   21.2 ************************************************
    (  2.0,   4.0)    1260   13.5 ******************************
    (  4.0,   6.0)     922    9.9 **********************
    (  6.0,   8.0)     286    3.1 *******
    (  8.0,  10.0)     145    1.6 ***
    ( 10.0,  12.0)       7     .1
```

ASL(905;COAST - RESIDUALS
POSITION 47.567 N 52.700 W





```
HISTOGRAM OF ASL(905;COAST)       TIDAL RESIDUALS  (CM)
 GRAND BANK
 CRUISE    85999.   STATION       905.    LAT   47.5670     LONG    52.7000
 INSTRUMENT               BOTTOM DEPTH    0.0 METRES
 SAMPLED EACH     3600. SECS      START TIME   1: 0: 0 Z    4/12/1985

TOTAL NO. OF SAMPLES   2664
NO. OUT OF RANGE          0


        BAND         NUMBER  PER
                             CENT


    (-46.0, -44.0)       4     .2 *
    (-44.0, -42.0)       2     .1
    (-42.0, -40.0)       1     .0
    (-40.0, -38.0)       2     .1
    (-38.0, -36.0)       1     .0
    (-36.0, -34.0)       5     .2 *
    (-34.0, -32.0)       4     .2 *
    (-32.0, -30.0)       6     .2 *
    (-30.0, -28.0)       8     .3 **
    (-28.0, -26.0)      16     .6 ****
    (-26.0, -24.0)      25     .9 ******
    (-24.0, -22.0)      40    1.5 **********
    (-22.0, -20.0)      45    1.7 ***********
    (-20.0, -18.0)      73    2.7 ******************
    (-18.0, -16.0)      75    2.8 *******************
    (-16.0, -14.0)      67    2.5 *****************
    (-14.0, -12.0)      89    3.3 **********************
    (-12.0, -10.0)      96    3.6 ************************
    (-10.0,  -8.0)     100    3.8 *************************
    ( -8.0,  -6.0)     127    4.8 ********************************
    ( -6.0,  -4.0)     148    5.6 *************************************
    ( -4.0,  -2.0)     191    7.2 ************************************************
    ( -2.0,   0.0)     184    6.9 **********************************************
    (  0.0,   2.0)     174    6.5 *******************************************
    (  2.0,   4.0)     133    5.0 *********************************
    (  4.0,   6.0)     171    6.4 *******************************************
    (  6.0,   8.0)     140    5.3 ***********************************
    (  8.0,  10.0)     145    5.4 ************************************
    ( 10.0,  12.0)     140    5.3 ***********************************
    ( 12.0,  14.0)     108    4.1 ***************************
    ( 14.0,  16.0)      91    3.4 ***********************
    ( 16.0,  18.0)      57    2.1 **************
    ( 18.0,  20.0)      38    1.4 *********
    ( 20.0,  22.0)      44    1.7 ***********
    ( 22.0,  24.0)      25     .9 ******
    ( 24.0,  26.0)      24     .9 ******
    ( 26.0,  28.0)      22     .8 *****
    ( 28.0,  30.0)       6     .2 *
    ( 30.0,  32.0)       6     .2 *
    ( 32.0,  34.0)       7     .3 **
    ( 34.0,  36.0)      10     .4 **
    ( 36.0,  38.0)      14     .5 ***
```

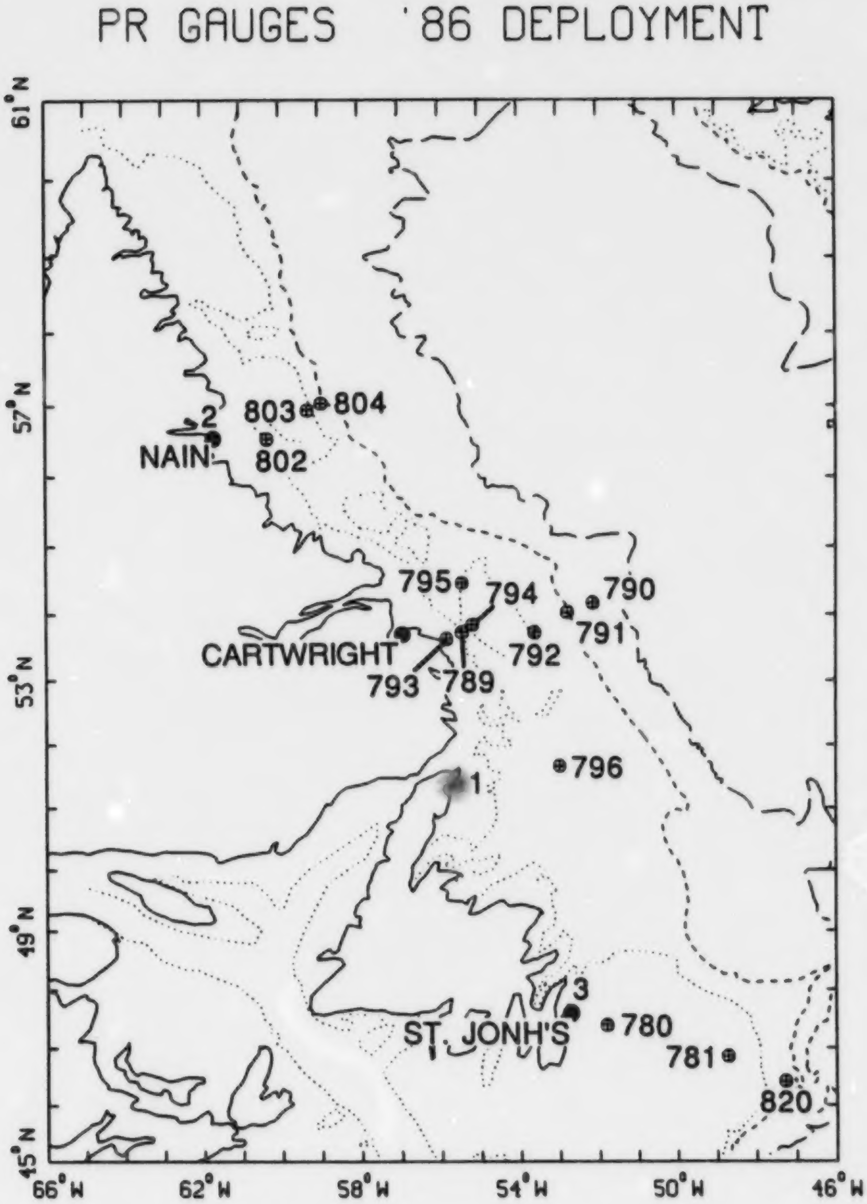
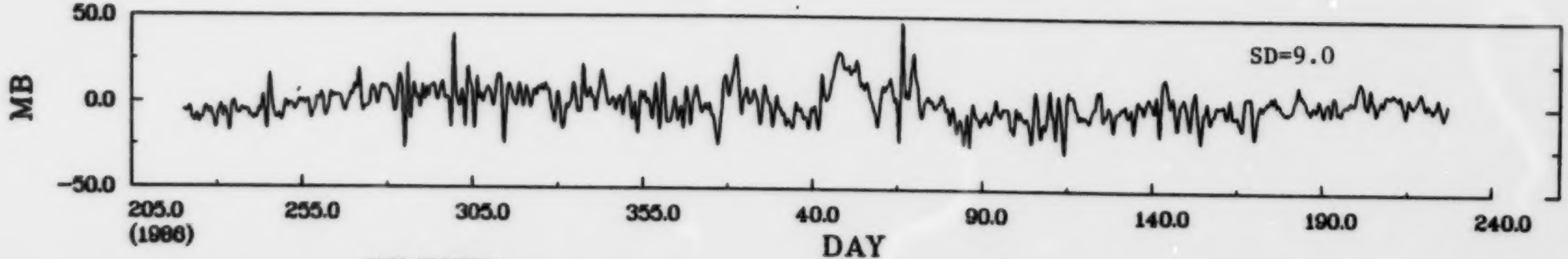
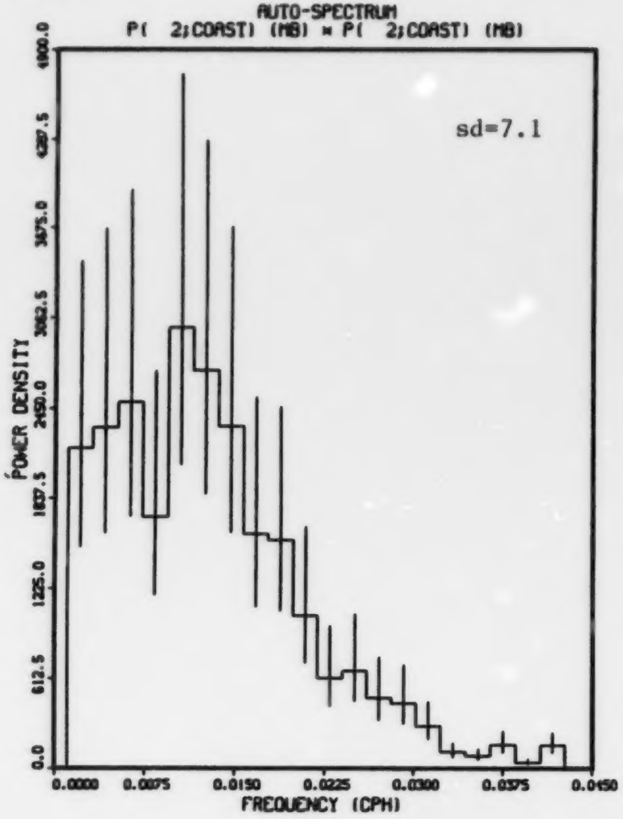
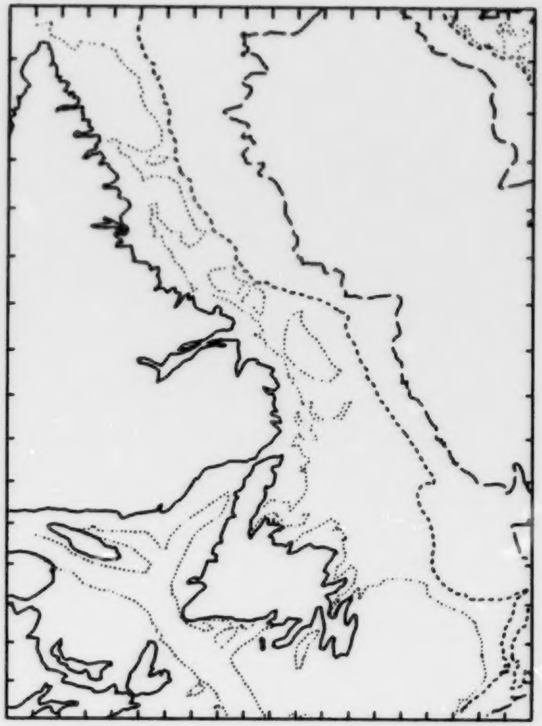

PR GAUGES '86 DEPLOYMENT
61°N
57°N
53°N
49°N
45°N
66°W
62°W
58°W
54°W
50°W
46°W
2
NAIN
803
804
802
795
794
790
791
792
CARTWRIGHT
793
789
796
1
3
ST. JONH'S
780
781
820

Figure 13. **Location map for pressure gauges moored over the shelf during the 1986/87 field year. Isobaths are indicated by (·····) 200 m, (- - - -) 1000 m and (— —) 3000m.**

P(2;COAST) - RESIDUALS
POSITION 56.533 N 61.683 W







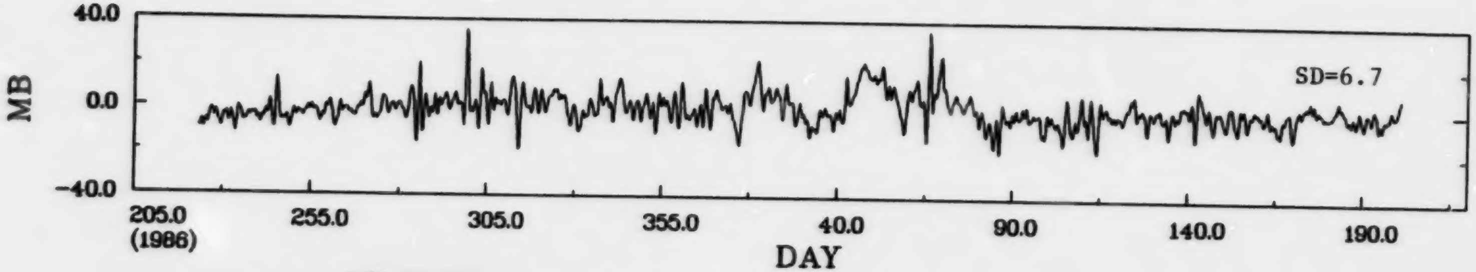
```
HISTOGRAM OF P(  2;COAST)      TIDAL RESIDUALS   (MB)
 NAIN
 CRUISE    99999.   STATION        2.    LAT   56.5333    LONG   61.6833
 INSTRUMENT                BOTTOM DEPTH    4.4 METRES
 SAMPLED EACH     3600. SECS      START TIME   1: 0: 0 Z    8/ 8/1986

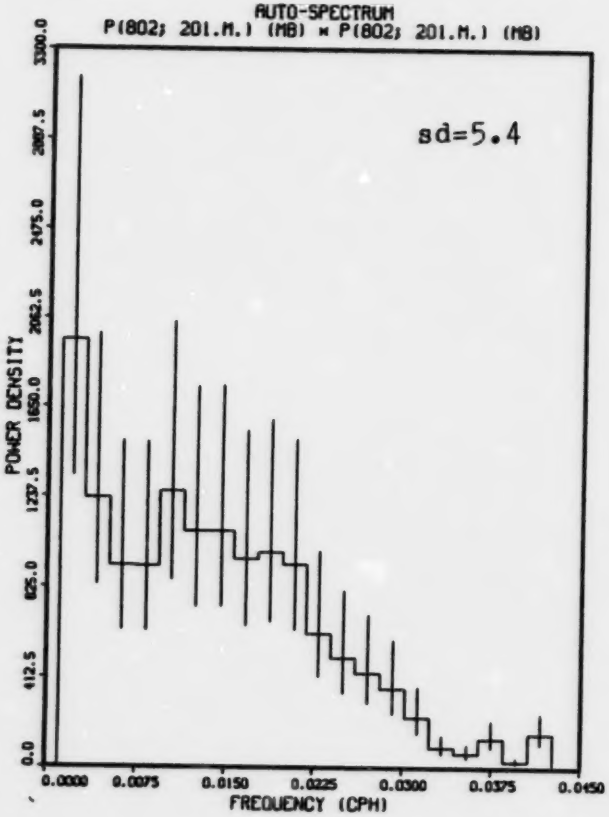
TOTAL NO. OF SAMPLES   8929
NO. OUT OF RANGE          0

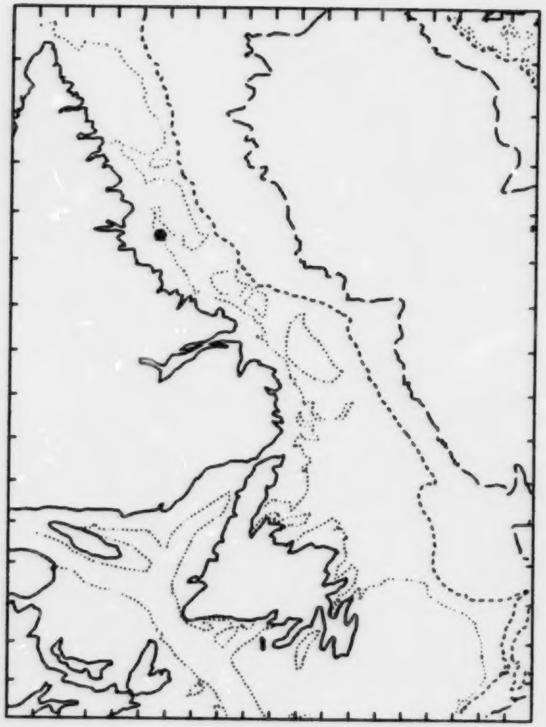

        BAND         NUMBER  PER
                             CENT


    (-30.0, -28.0)       3     .0
    (-28.0, -26.0)      10     .1
    (-26.0, -24.0)      25     .3 *
    (-24.0, -22.0)      36     .4 **
    (-22.0, -20.0)      37     .4 **
    (-20.0, -18.0)      62     .7 ***
    (-18.0, -16.0)      84     .9 ****
    (-16.0, -14.0)     185    2.1 *********
    (-14.0, -12.0)     228    2.6 ***********
    (-12.0, -10.0)     341    3.8 *****************
    (-10.0,  -8.0)     484    5.4 ************************
    ( -8.0,  -6.0)     593    6.6 ******************************
    ( -6.0,  -4.0)     796    8.9 ****************************************
    ( -4.0,  -2.0)     844    9.5 ******************************************
    ( -2.0,   0.0)     817    9.1 *****************************************
    (  0.0,   2.0)     907   10.2 *********************************************
    (  2.0,   4.0)     851    9.5 *******************************************
    (  4.0,   6.0)     699    7.8 ***********************************
    (  6.0,   8.0)     557    6.2 ****************************
    (  8.0,  10.0)     420    4.7 *********************
    ( 10.0,  12.0)     273    3.1 **************
    ( 12.0,  14.0)     135    1.5 *******
    ( 14.0,  16.0)     130    1.5 ******
    ( 16.0,  18.0)     104    1.2 *****
    ( 18.0,  20.0)      74     .8 ****
    ( 20.0,  22.0)      64     .7 ***
    ( 22.0,  24.0)      39     .4 **
    ( 24.0,  26.0)      36     .4 **
    ( 26.0,  28.0)      20     .2 *
    ( 28.0,  30.0)      39     .4 **
    ( 30.0,  32.0)      12     .1 *
    ( 32.0,  34.0)       2     .0
    ( 34.0,  36.0)       3     .0
    ( 36.0,  38.0)       1     .0
    ( 38.0,  40.0)       6     .1
    ( 40.0,  42.0)       3     .0
    ( 42.0,  44.0)       1     .0
    ( 44.0,  46.0)       2     .0
    ( 46.0,  48.0)       3     .0
    ( 48.0,  50.0)       3     .0
```

P(802; 201M) - RESIDUALS
POSITION 56.541 N 60.328 W







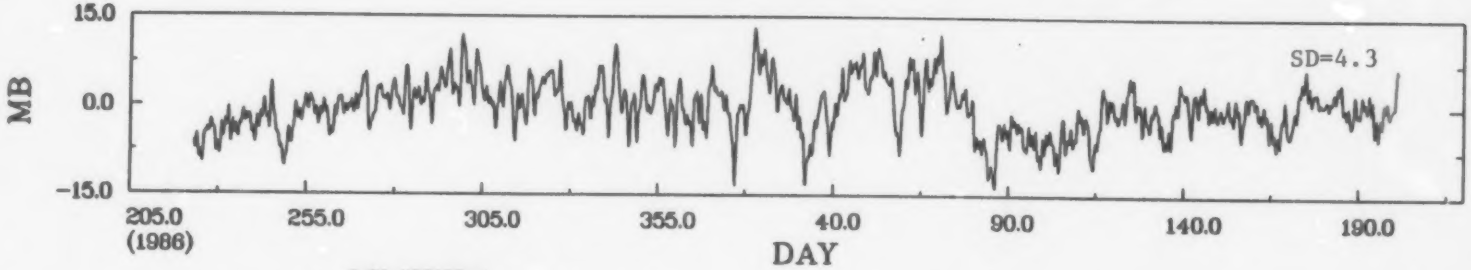
```
HISTOGRAM OF P(802; 201M)       TIDAL RESIDUALS  (MB)
 NAIN BANK
 CRUISE    86021.   STATION      802.    LAT   56.5413    LONG   60.3277
 INSTRUMENT               BOTTOM DEPTH  201.0 METRES
 SAMPLED EACH     3600. SECS       START TIME   1: 0: 0 Z   11/ 8/1986

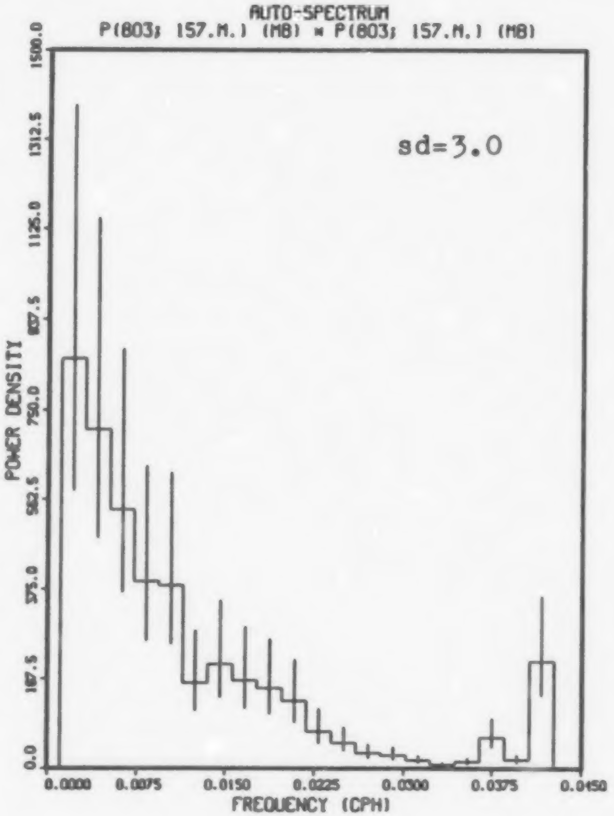
TOTAL NO. OF SAMPLES   8236
NO. OUT OF RANGE          0

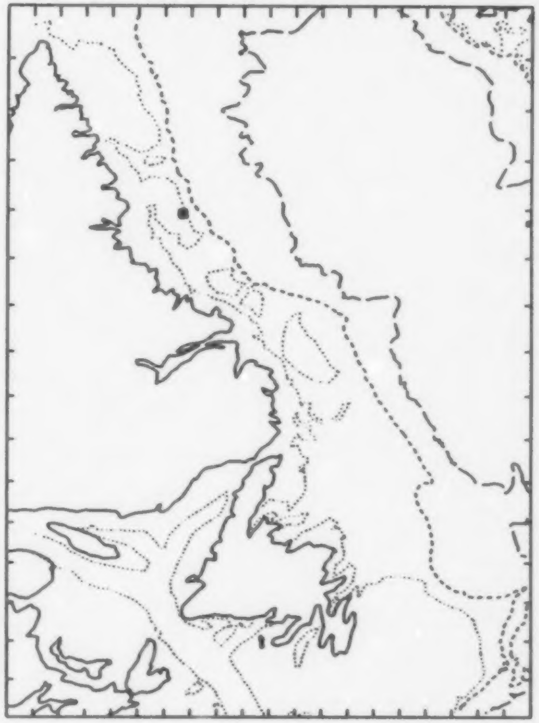

        BAND          NUMBER  PER
                              CENT


    (-22.0, -20.0)       2      .0
    (-20.0, -18.0)      20      .2 *
    (-18.0, -16.0)      34      .4 *
    (-16.0, -14.0)      44      .5 **
    (-14.0, -12.0)      66      .8 ***
    (-12.0, -10.0)     189     2.3 *******
    (-10.0,  -8.0)     348     4.2 *************
    ( -8.0,  -6.0)     447     5.4 *****************
    ( -6.0,  -4.0)     901    10.9 ***********************************
    ( -4.0,  -2.0)    1224    14.9 ***********************************************
    ( -2.0,   0.0)    1255    15.2 ************************************************
    (  0.0,   2.0)    1121    13.6 *******************************************
    (  2.0,   4.0)     834    10.1 ********************************
    (  4.0,   6.0)     527     6.4 ********************
    (  6.0,   8.0)     406     4.9 ****************
    (  8.0,  10.0)     241     2.9 *********
    ( 10.0,  12.0)     146     1.8 ******
    ( 12.0,  14.0)     130     1.6 *****
    ( 14.0,  16.0)      97     1.2 ****
    ( 16.0,  18.0)      50      .6 **
    ( 18.0,  20.0)      64      .8 **
    ( 20.0,  22.0)      39      .5 *
    ( 22.0,  24.0)      15      .2 *
    ( 24.0,  26.0)      12      .1
    ( 26.0,  28.0)       1      .0
    ( 28.0,  30.0)       3      .0
    ( 30.0,  32.0)       4      .0
    ( 32.0,  34.0)       4      .0
    ( 34.0,  36.0)       5      .1
    ( 36.0,  38.0)       7      .1
```

P(803; 157M) – RESIDUALS
POSITION 56.938 N 59.298 W







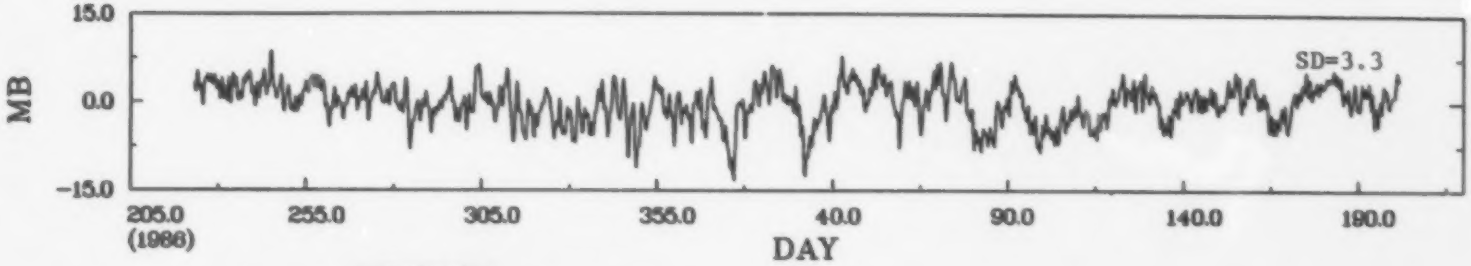
```
HISTOGRAM OF P(803; 157M)      TIDAL RESIDUALS  (MB)
 NAIN BANK
 CRUISE    86021.   STATION      803.    LAT   56.9378    LONG   59.2982
 INSTRUMENT                BOTTOM DEPTH  157.0 METRES
 SAMPLED EACH     3600. SECS      START TIME   1: 0: 0 Z   11/ 8/1986

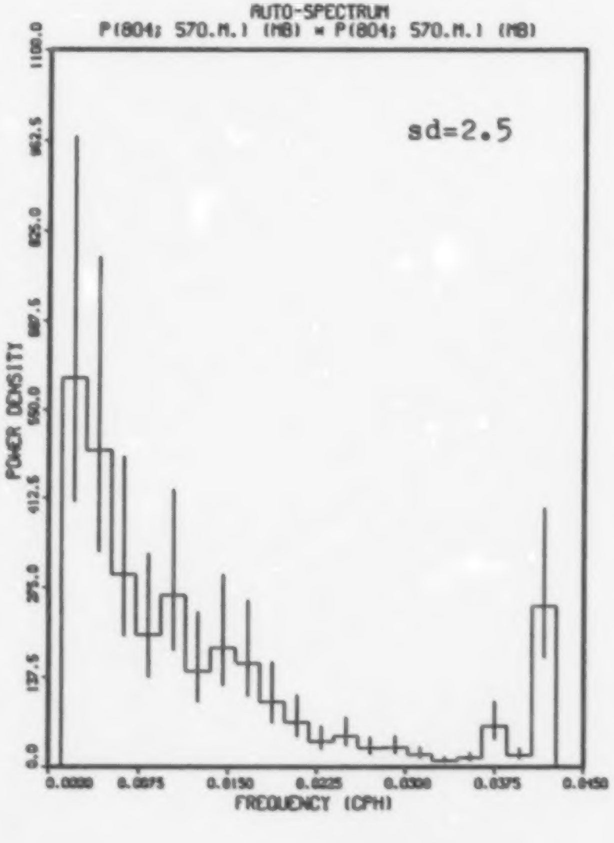
TOTAL NO. OF SAMPLES   8241
NO. OUT OF RANGE          0

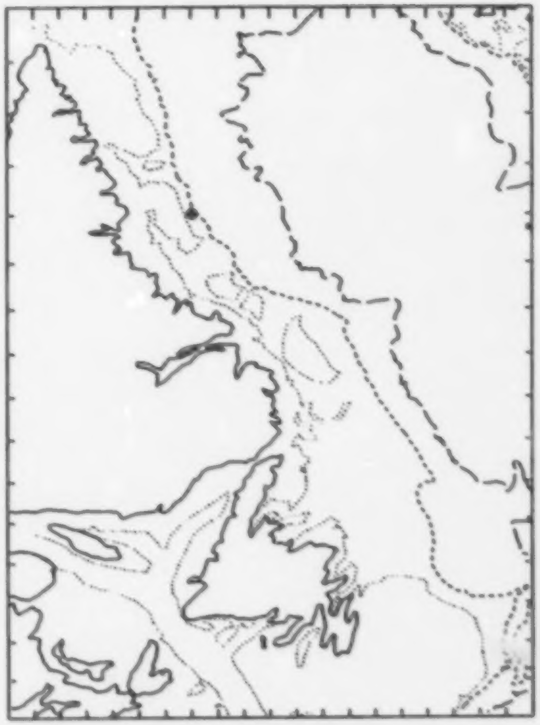

        BAND          NUMBER  PER
                              CENT


    (-14.0, -12.0)       40     .5 *
    (-12.0, -10.0)       73     .9 **
    (-10.0,  -8.0)      176    2.1 *****
    ( -8.0,  -6.0)      439    5.3 **************
    ( -6.0,  -4.0)      802    9.7 *************************
    ( -4.0,  -2.0)     1074   13.0 **********************************
    ( -2.0,   0.0)     1584   19.2 ************************************************
    (  0.0,   2.0)     1582   19.2 ************************************************
    (  2.0,   4.0)     1167   14.2 ************************************
    (  4.0,   6.0)      636    7.7 ********************
    (  6.0,   8.0)      403    4.9 *************
    (  8.0,  10.0)      185    2.2 ******
    ( 10.0,  12.0)       59     .7 **
    ( 12.0,  14.0)       21     .3 *
```

P(804; 570M) - RESIDUALS
POSITION 57.029 N 58.946 W







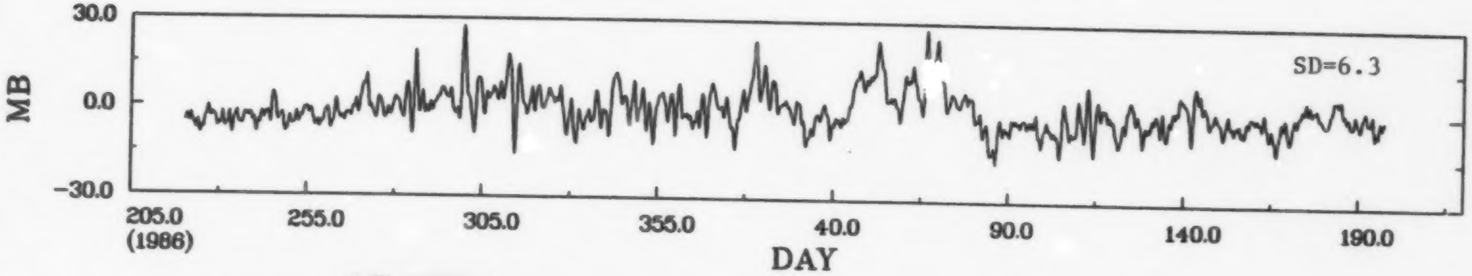
```
HISTOGRAM OF P(804; 570M)      TIDAL RESIDUALS  (MB)
 NAIN BANK
 CRUISE    86021.   STATION      804.    LAT   57.0287    LONG   58.9462
 INSTRUMENT                 BOTTOM DEPTH  570.0 METRES
 SAMPLED EACH     3600. SECS      START TIME   1: 0: 0 Z    11/ 8/1986

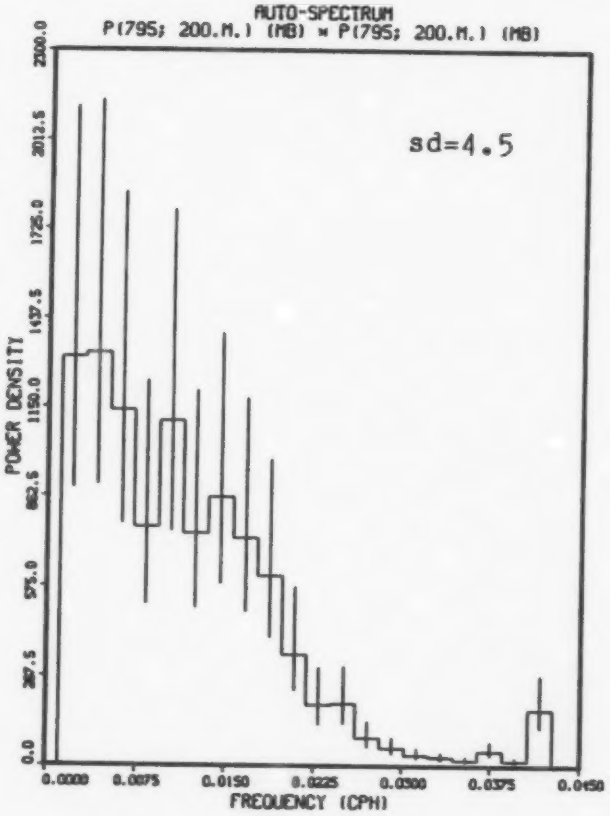
TOTAL NO. OF SAMPLES   8244
NO. OUT OF RANGE          0

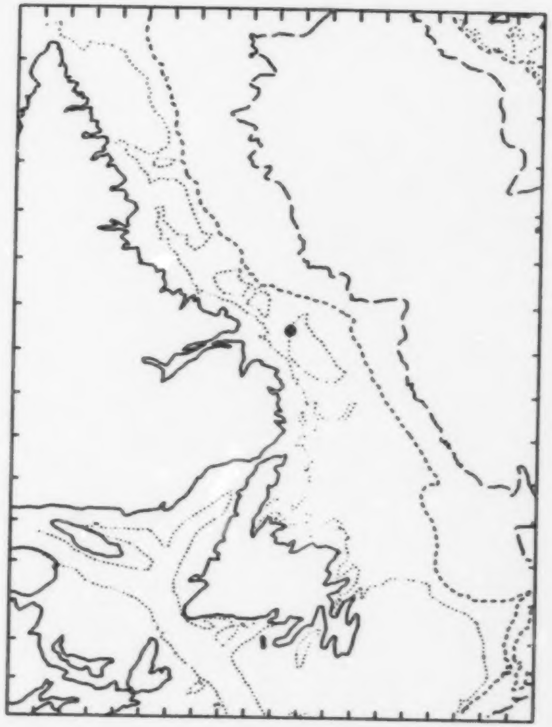
        BAND         NUMBER  PER
                             CENT


    (-14.0, -12.0)      16     .2
    (-12.0, -10.0)      38     .5 *
    (-10.0,  -8.0)      78     .9 **
    ( -8.0,  -6.0)     309    3.7 ********
    ( -6.0,  -4.0)     695    8.4 *****************
    ( -4.0,  -2.0)     945   11.5 ************************
    ( -2.0,   0.0)    1930   23.4 ************************************************
    (  0.0,   2.0)    1946   23.6 ************************************************
    (  2.0,   4.0)    1586   19.2 ****************************************
    (  4.0,   6.0)     623    7.6 ****************
    (  6.0,   8.0)      65     .8 **
    (  8.0,  10.0)      13     .2
```

P(795; 200M) - RESIDUALS
POSITION 54.461 N 55.439 W







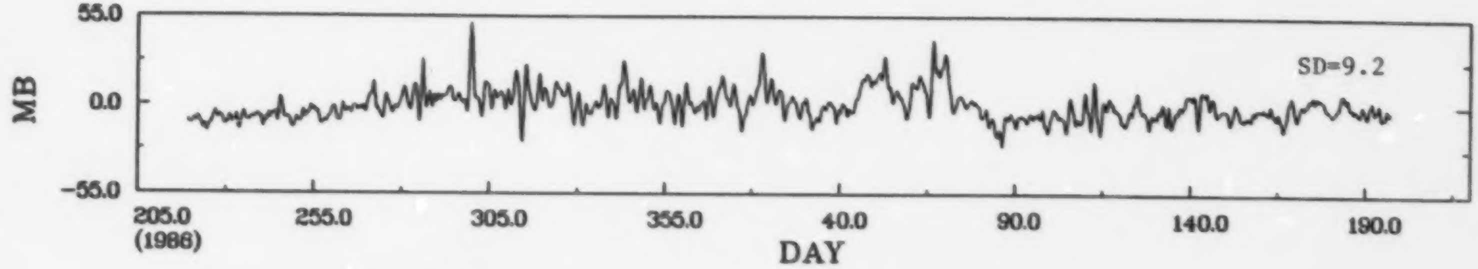
```
HISTOGRAM OF P(795; 200M)      TIDAL RESIDUALS  (MB)
 HAMILTON BANK
 CRUISE    86021.   STATION      795.    LAT   54.4605    LONG   55.4388
 INSTRUMENT              BOTTOM DEPTH  200.0 METRES
 SAMPLED EACH     3600. SECS      START TIME   1: 0: 0 Z    8/ 8/1985

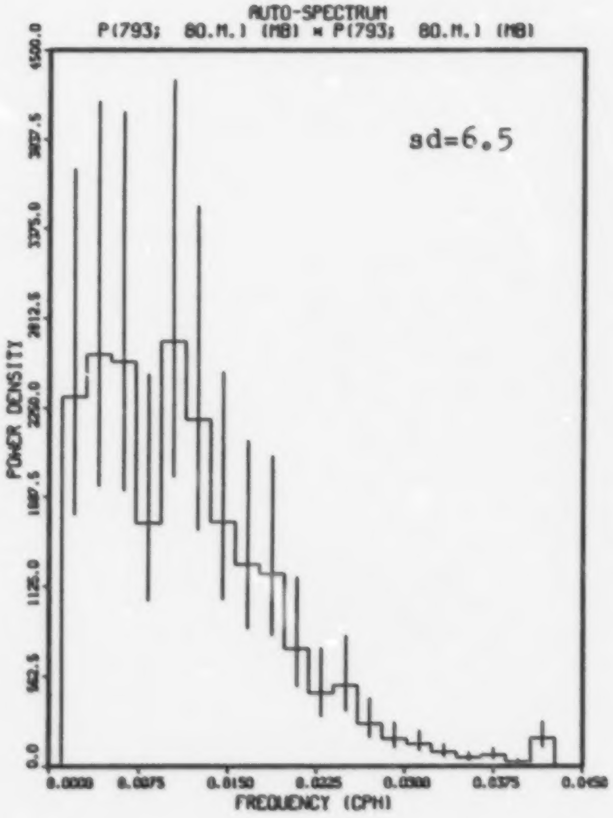
TOTAL NO. OF SAMPLES   8223
NO. OUT OF RANGE          0

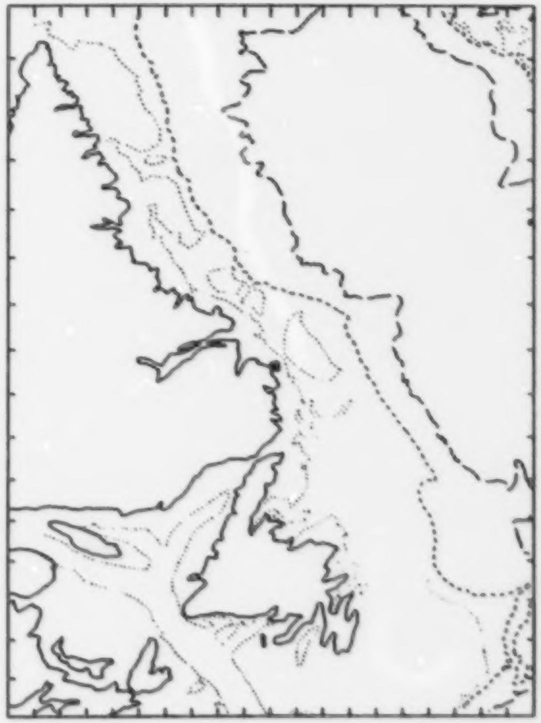

       BAND         NUMBER  PER
                            CENT


    (-18.0, -16.0)      9     .1
    (-16.0, -14.0)     34     .4 *
    (-14.0, -12.0)     62     .8 **
    (-12.0, -10.0)    111    1.3 ****
    (-10.0,  -8.0)    287    3.5 **********
    ( -8.0,  -6.0)    603    7.3 ********************
    ( -6.0,  -4.0)    945   11.5 *******************************
    ( -4.0,  -2.0)   1470   17.9 ************************************************
    ( -2.0,   0.0)   1185   14.4 ***************************************
    (  0.0,   2.0)    904   11.0 ******************************
    (  2.0,   4.0)    806    9.8 ***************************
    (  4.0,   6.0)    655    8.0 **********************
    (  6.0,   8.0)    333    4.0 ***********
    (  8.0,  10.0)    263    3.2 *********
    ( 10.0,  12.0)    201    2.4 *******
    ( 12.0,  14.0)     92    1.1 ***
    ( 14.0,  16.0)     93    1.1 ***
    ( 16.0,  18.0)     44     .5 *
    ( 18.0,  20.0)     34     .4 *
    ( 20.0,  22.0)     23     .3 *
    ( 22.0,  24.0)     30     .4 *
    ( 24.0,  26.0)     22     .3 *
    ( 26.0,  28.0)     10     .1
    ( 28.0,  30.0)      7     .1
```

P(793; 80M) - RESIDUALS
POSITION 53.628 N 55.832 W







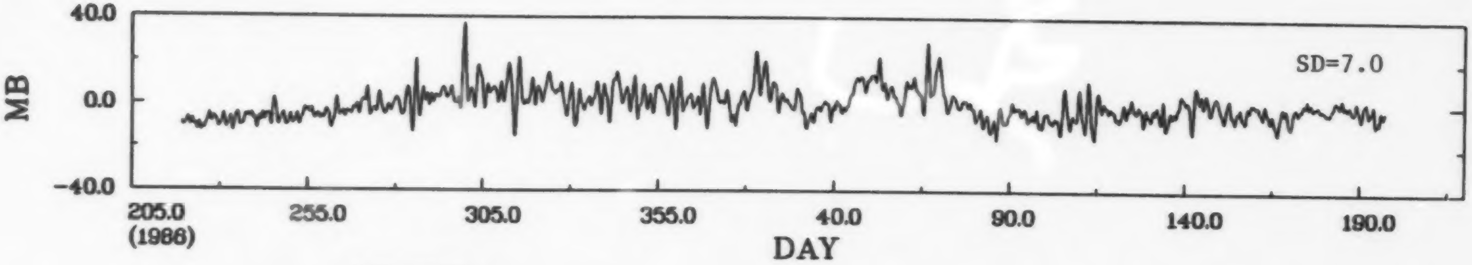
```
HISTOGRAM OF P(793;  80M)      TIDAL RESIDUALS  (MB)
 HAMILTON BANK
 CRUISE    86021.   STATION      793.    LAT   53.6277    LONG   55.8323
 INSTRUMENT              BOTTOM DEPTH   80.0 METRES
 SAMPLED EACH      3600. SECS      START TIME   1: 0: 0 Z     7/ 8/1986

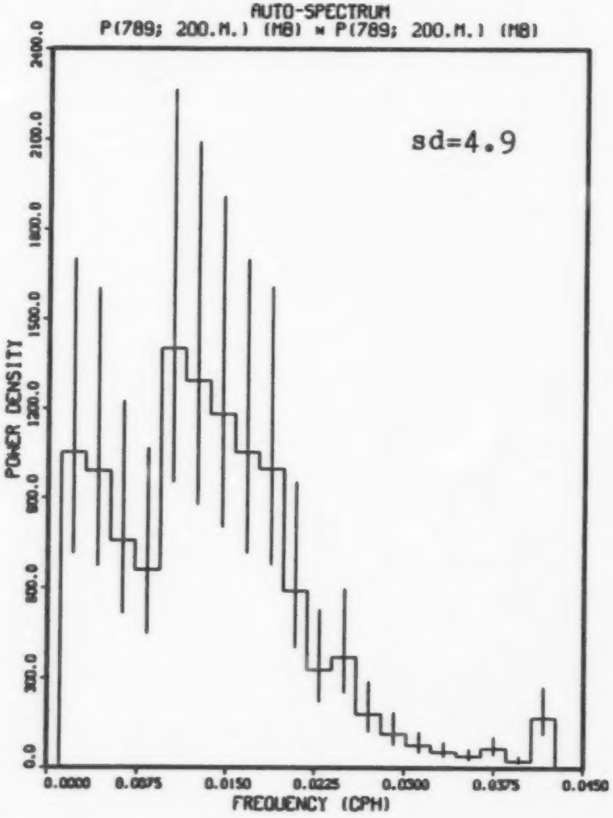
TOTAL NO. OF SAMPLES   8236
NO. OUT OF RANGE          0

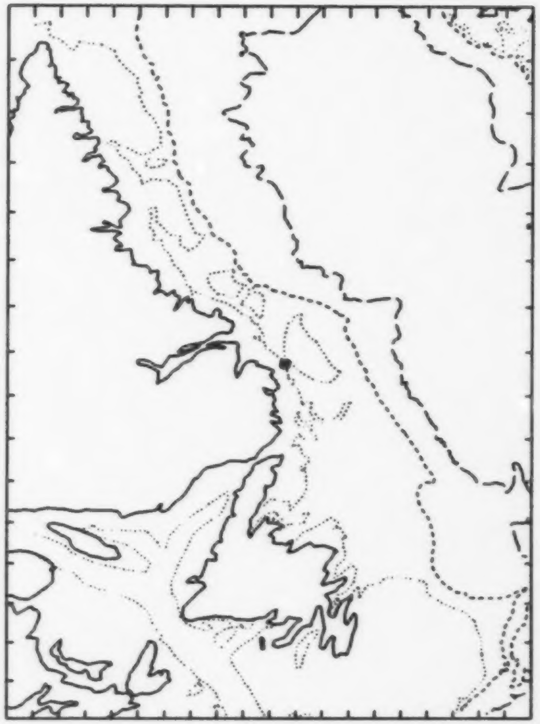

        BAND         NUMBER  PER
                             CENT


    (-26.0, -24.0)       8     .1
    (-24.0, -22.0)      11     .1 *
    (-22.0, -20.0)       6     .1
    (-20.0, -18.0)      31     .4 **
    (-18.0, -16.0)      48     .6 ***
    (-16.0, -14.0)     104    1.3 ******
    (-14.0, -12.0)     228    2.8 *************
    (-12.0, -10.0)     437    5.3 ************************
    (-10.0,  -8.0)     623    7.6 ***********************************
    ( -8.0,  -6.0)     760    9.2 ******************************************
    ( -6.0,  -4.0)     743    9.0 *****************************************
    ( -4.0,  -2.0)     857   10.4 ************************************************
    ( -2.0,   0.0)     778    9.4 *******************************************
    (  0.0,   2.0)     676    8.2 **************************************
    (  2.0,   4.0)     584    7.1 ********************************
    (  4.0,   6.0)     581    7.1 ********************************
    (  6.0,   8.0)     412    5.0 ***********************
    (  8.0,  10.0)     312    3.8 *****************
    ( 10.0,  12.0)     237    2.9 *************
    ( 12.0,  14.0)     212    2.6 ************
    ( 14.0,  16.0)     145    1.8 ********
    ( 16.0,  18.0)     107    1.3 ******
    ( 18.0,  20.0)      84    1.0 *****
    ( 20.0,  22.0)      53     .6 ***
    ( 22.0,  24.0)      47     .6 ***
    ( 24.0,  26.0)      27     .3 *
    ( 26.0,  28.0)      31     .4 **
    ( 28.0,  30.0)      20     .2 *
    ( 30.0,  32.0)      21     .3 *
    ( 32.0,  34.0)      20     .2 *
    ( 34.0,  36.0)       3     .0
    ( 36.0,  38.0)       3     .0
    ( 38.0,  40.0)       5     .1
    ( 40.0,  42.0)       6     .1
    ( 42.0,  44.0)       4     .0
    ( 44.0,  46.0)       2     .0
    ( 46.0,  48.0)       2     .0
    ( 48.0,  50.0)       3     .0
```

P(789; 200M) - RESIDUALS
POSITION 53.733 N 55.447 W







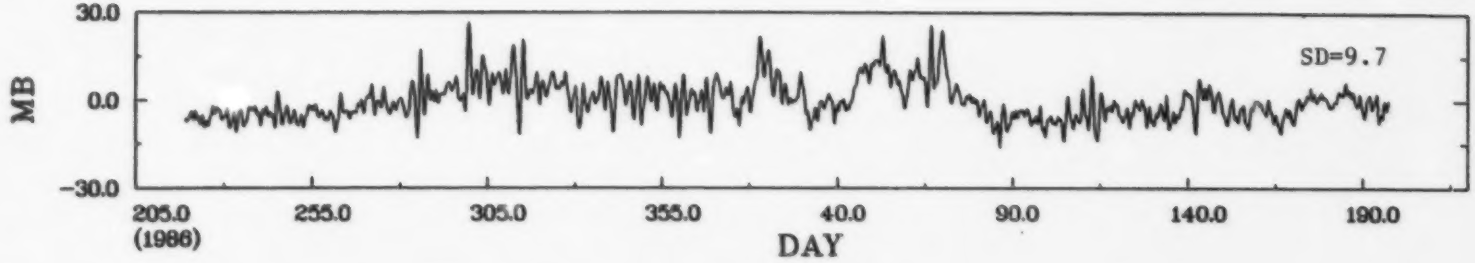
```
HISTOGRAM OF P(789; 200M)      TIDAL RESIDUALS  (MB)
 HAMILTON BANK
 CRUISE    86021.   STATION      789.    LAT   53.7332    LONG   55.4467
 INSTRUMENT                BOTTOM DEPTH  200.0 METRES
 SAMPLED EACH     3600. SECS      START TIME   1: 0: 0 Z    7/ 8/1986

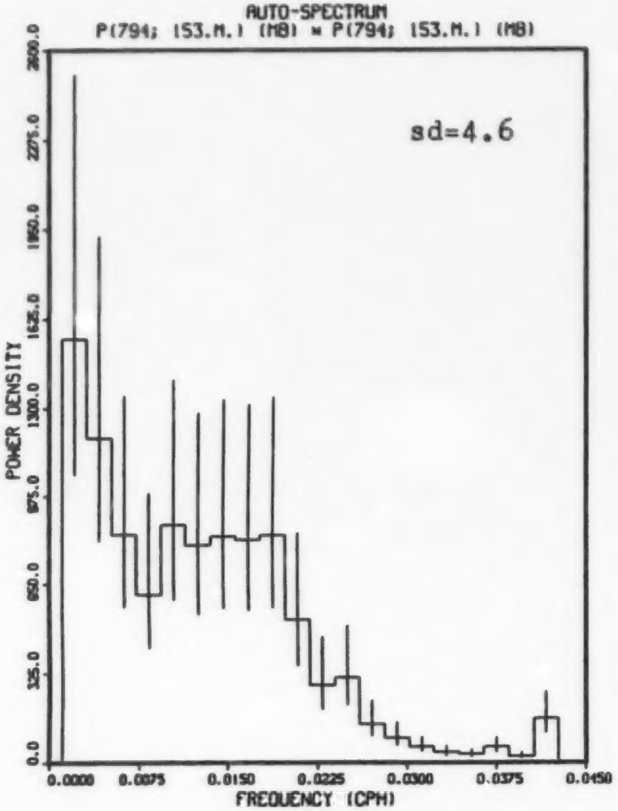
TOTAL NO. OF SAMPLES   8239
NO. OUT OF RANGE          0

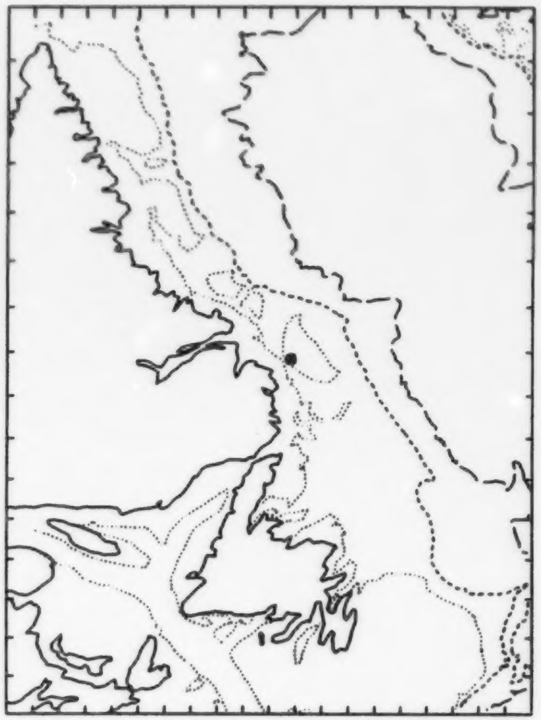

        BAND         NUMBER  PER
                             CENT


    (-18.0, -16.0)      5      .1
    (-16.0, -14.0)     24      .3 •
    (-14.0, -12.0)     91     1.1 ••••
    (-12.0, -10.0)    257     3.1 ••••••••••••
    (-10.0,  -8.0)    488     5.9 ••••••••••••••••••••••
    ( -8.0,  -6.0)    715     8.7 ••••••••••••••••••••••••••••••••
    ( -6.0,  -4.0)    880    10.7 ••••••••••••••••••••••••••••••••••••••••
    ( -4.0,  -2.0)    984    11.9 •••••••••••••••••••••••••••••••••••••••••••••
    ( -2.0,   0.0)   1084    13.2 ••••••••••••••••••••••••••••••••••••••••••••••••
    (  0.0,   2.0)    969    11.8 ••••••••••••••••••••••••••••••••••••••••••••
    (  2.0,   4.0)    696     8.4 ••••••••••••••••••••••••••••••••
    (  4.0,   6.0)    578     7.0 ••••••••••••••••••••••••••
    (  6.0,   8.0)    460     5.6 •••••••••••••••••••••
    (  8.0,  10.0)    339     4.1 •••••••••••••••
    ( 10.0,  12.0)    225     2.7 ••••••••••
    ( 12.0,  14.0)    171     2.1 ••••••••
    ( 14.0,  16.0)     73      .9 •••
    ( 16.0,  18.0)     48      .6 ••
    ( 18.0,  20.0)     52      .6 ••
    ( 20.0,  22.0)     36      .4 ••
    ( 22.0,  24.0)     24      .3 •
    ( 24.0,  26.0)     13      .2 •
    ( 26.0,  28.0)      5      .1
    ( 28.0,  30.0)      8      .1
    ( 30.0,  32.0)      2      .0
    ( 32.0,  34.0)      2      .0
    ( 34.0,  36.0)      4      .0
    ( 36.0,  38.0)      6      .1
```

P(794; 153M) - RESIDUALS
POSITION 53.844 N 55.184 W







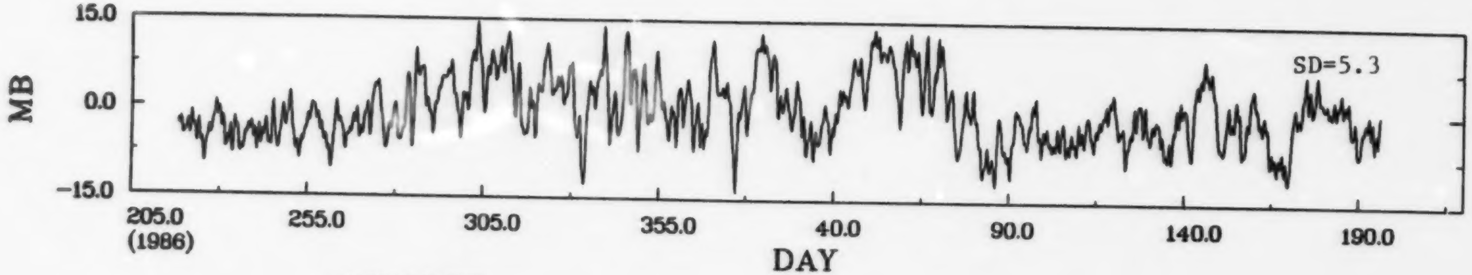
```
HISTOGRAM OF P(794; 153M)      TIDAL RESIDUALS   (MB)
 HAMILTON BANK
 CRUISE    86021.   STATION      794.    LAT   53.8438    LONG   55.1843
 INSTRUMENT                BOTTOM DEPTH  153.0 METRES
 SAMPLED EACH     3600. SECS      START TIME   1: 0: 0 Z    7/ 8/1986

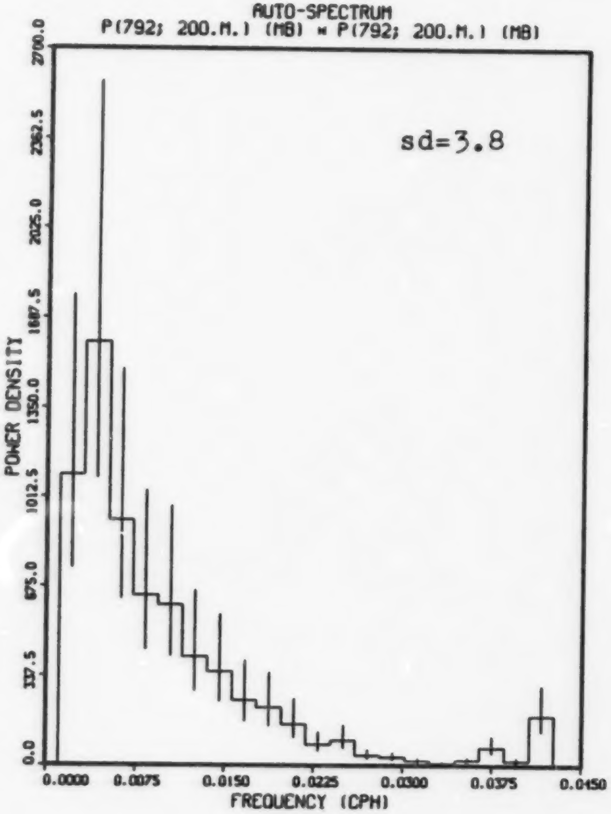
TOTAL NO. OF SAMPLES   8242
NO. OUT OF RANGE          0

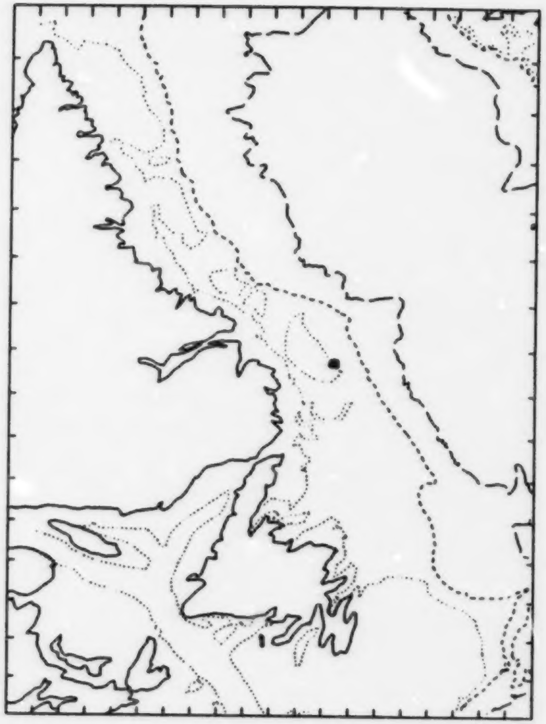
        BAND         NUMBER  PER
                             CENT


    (-18.0, -16.0)       3     .0
    (-16.0, -14.0)      13     .2 *
    (-14.0, -12.0)      51     .6 **
    (-12.0, -10.0)     141    1.7 ******
    (-10.0,  -8.0)     392    4.8 ****************
    ( -8.0,  -6.0)     760    9.2 ********************************
    ( -6.0,  -4.0)    1016   12.3 ******************************************
    ( -4.0,  -2.0)    1121   13.6 ***********************************************
    ( -2.0,   0.0)    1080   13.1 *********************************************
    (  0.0,   2.0)     998   12.1 ******************************************
    (  2.0,   4.0)     789    9.6 *********************************
    (  4.0,   6.0)     568    6.9 ************************
    (  6.0,   8.0)     412    5.0 *****************
    (  8.0,  10.0)     350    4.2 ***************
    ( 10.0,  12.0)     183    2.2 ********
    ( 12.0,  14.0)     127    1.5 *****
    ( 14.0,  16.0)      71     .9 ***
    ( 16.0,  18.0)      53     .6 **
    ( 18.0,  20.0)      37     .4 **
    ( 20.0,  22.0)      33     .4 *
    ( 22.0,  24.0)      22     .3 *
    ( 24.0,  26.0)      14     .2 *
    ( 26.0,  28.0)       8     .1
```

P(792; 200M) - RESIDUALS
POSITION 53.726 N 53.618 W







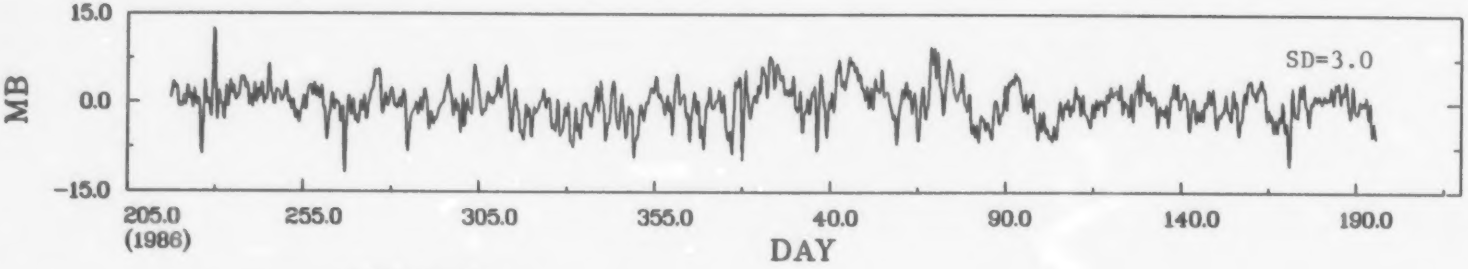
```
HISTOGRAM OF P(792; 200M)      TIDAL RESIDUALS  (MB)
 HAMILTON BANK
 CRUISE    86021.   STATION      792.    LAT  53.7258    LONG  53.6178
 INSTRUMENT              BOTTOM DEPTH  200.0 METRES
 SAMPLED EACH     3600. SECS      START TIME   1: 0: 0 Z    6/ 8/1986

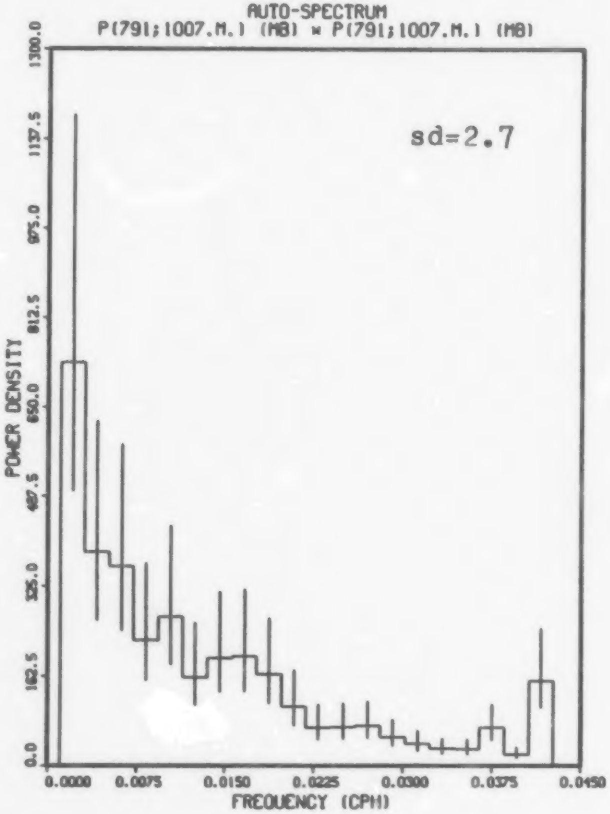
TOTAL NO. OF SAMPLES   8237
NO. OUT OF RANGE          0

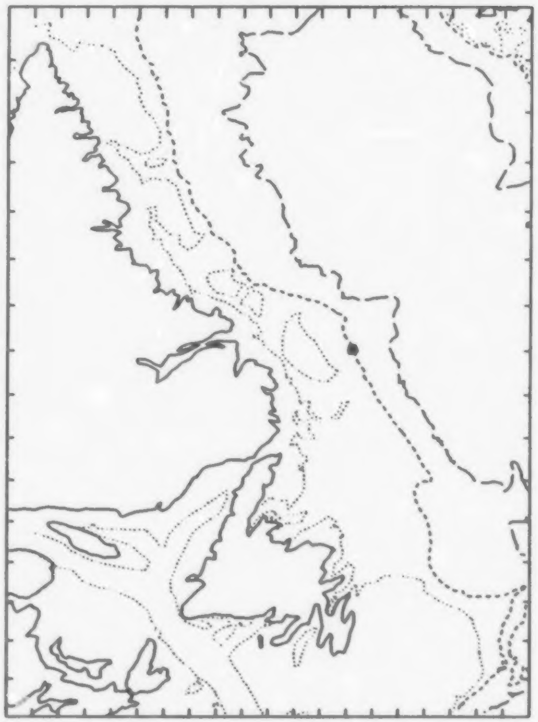

        BAND         NUMBER  PER
                             CENT


    (-14.0, -12.0)      25     .3 *
    (-12.0, -10.0)      80    1.0 ***
    (-10.0,  -8.0)     191    2.3 *******
    ( -8.0,  -6.0)     649    7.9 *************************
    ( -6.0,  -4.0)    1088   13.2 ******************************************
    ( -4.0,  -2.0)    1268   15.4 ************************************************
    ( -2.0,   0.0)    1222   14.8 ***********************************************
    (  0.0,   2.0)    1076   13.1 *****************************************
    (  2.0,   4.0)     844   10.2 ********************************
    (  4.0,   6.0)     524    6.4 ********************
    (  6.0,   8.0)     491    6.0 *******************
    (  8.0,  10.0)     370    4.5 **************
    ( 10.0,  12.0)     276    3.4 ***********
    ( 12.0,  14.0)     122    1.5 *****
    ( 14.0,  16.0)      11     .1
```

P(791;1007M) - RESIDUALS
POSITION 54.029 N 52.778 W







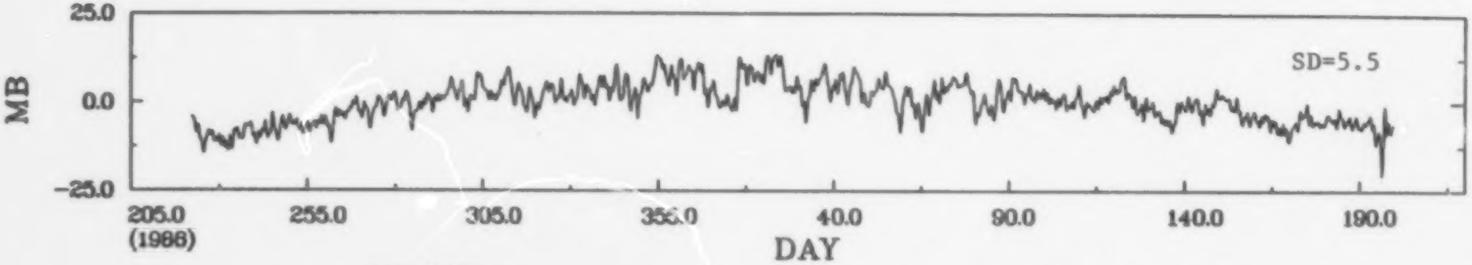
```
HISTOGRAM OF P(791;1007M)      TIDAL RESIDUALS  (MB)
 HAMILTON BANK
  CRUISE    86021.   STATION      791.    LAT   54.0292    LONG   52.7777
  INSTRUMENT              BOTTOM DEPTH 1007.0 METRES
  SAMPLED EACH     3600. SECS      START TIME   1: 0: 0 Z    5/ 8/1986

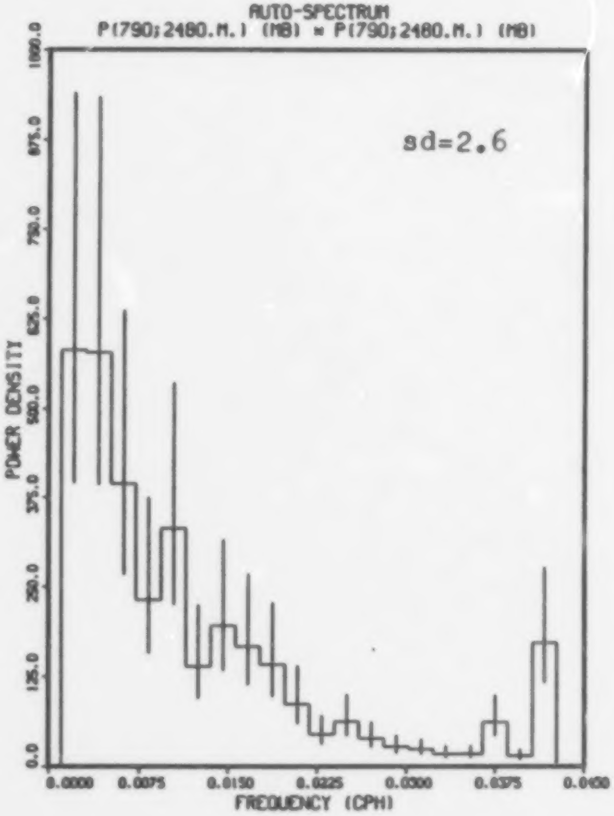
TOTAL NO. OF SAMPLES   8244
NO. OUT OF RANGE          0

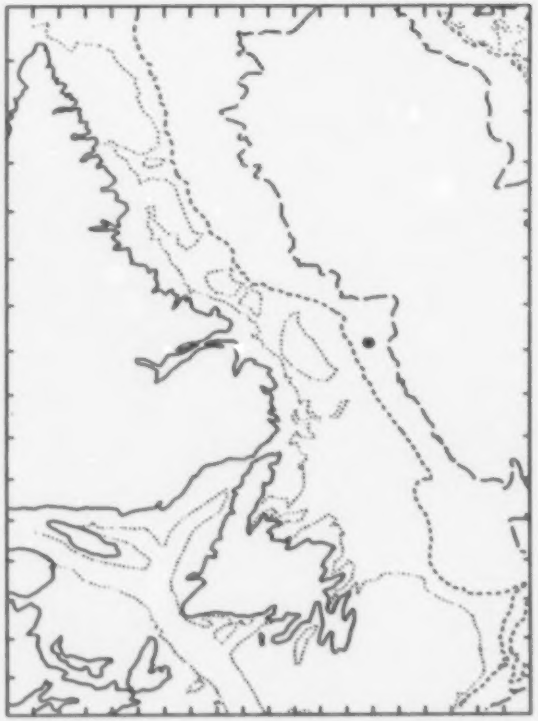

        BAND          NUMBER  PER
                              CENT


    (-14.0, -12.0)       3      .0
    (-12.0, -10.0)      15      .2
    (-10.0,  -8.0)      50      .6 *
    ( -8.0,  -6.0)     177     2.1 ****
    ( -6.0,  -4.0)     569     6.9 ************
    ( -4.0,  -2.0)    1013    12.3 *********************
    ( -2.0,   0.0)    2109    25.6 ********************************************
    (  0.0,   2.0)    2327    28.2 ************************************************
    (  2.0,   4.0)    1310    15.9 ***************************
    (  4.0,   6.0)     455     5.5 *********
    (  6.0,   8.0)     169     2.0 ****
    (  8.0,  10.0)      35      .4 *
    ( 10.0,  12.0)       5      .1
    ( 12.0,  14.0)       7      .1
```

P(790;2480M) - RESIDUALS
POSITION 54.175 N 52.135 W





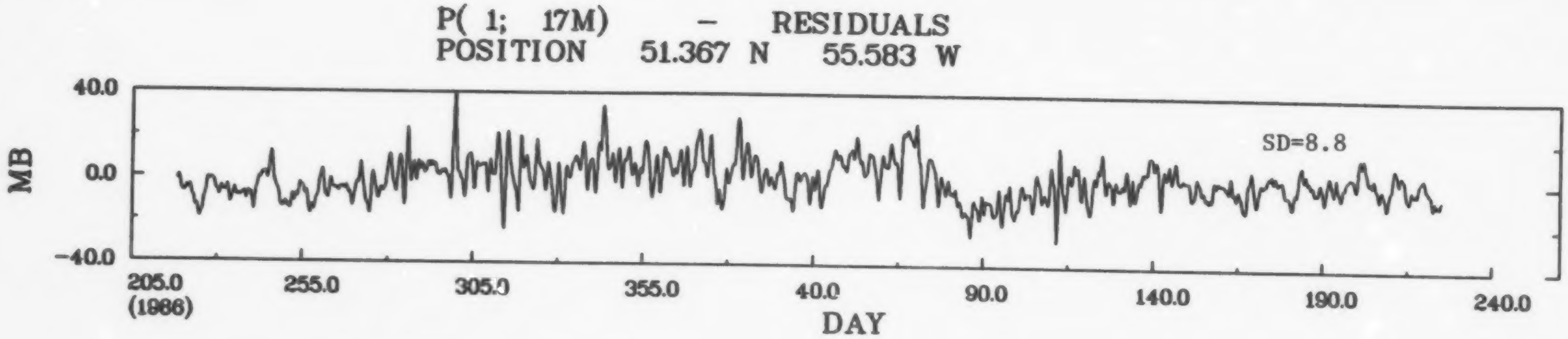


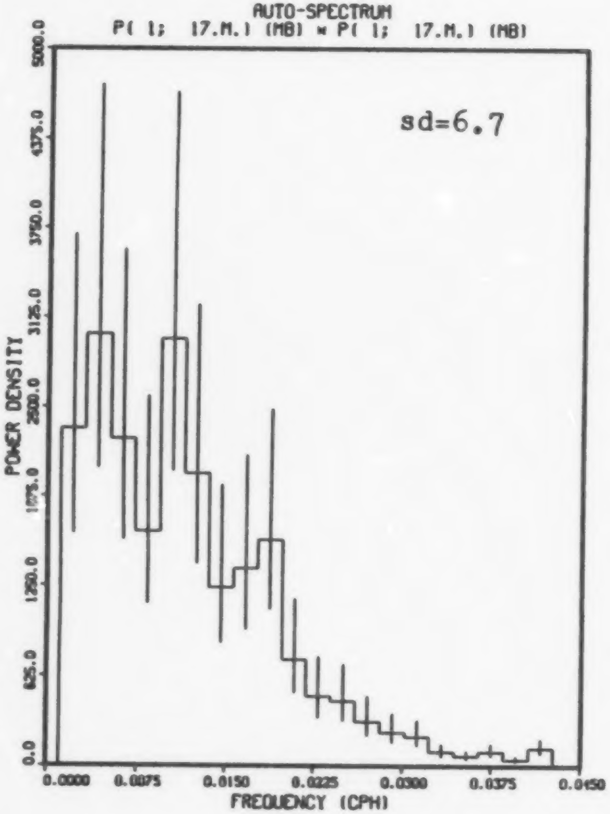
```
HISTOGRAM OF P(790;2480M)      TIDAL RESIDUALS  (MB)
 HAMILTON BANK
 CRUISE    86021.   STATION      790.    LAT   54.1748    LONG   52.1345
 INSTRUMENT              BOTTOM DEPTH 2480.0 METRES
 SAMPLED EACH     3600. SECS      START TIME   1: 0: 0 Z   10/ 8/1986

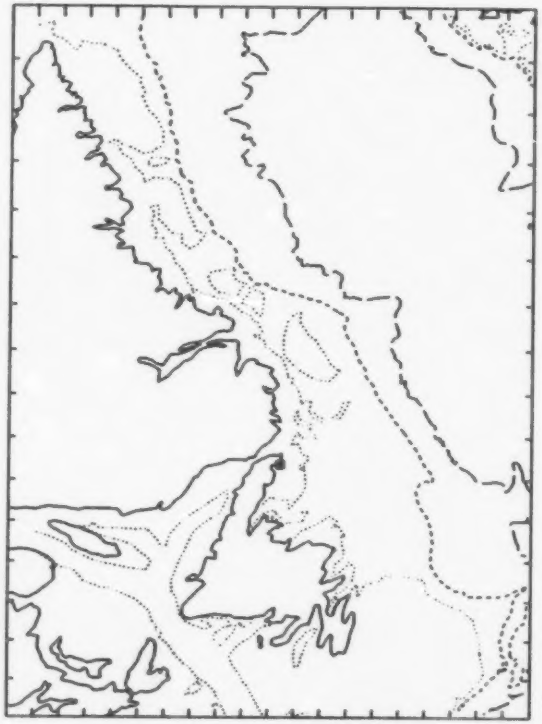
TOTAL NO. OF SAMPLES   8225
NO. OUT OF RANGE          0

        BAND         NUMBER  PER
                             CENT


    (-22.0, -20.0)      4     .0
    (-20.0, -18.0)      5     .1
    (-18.0, -16.0)      3     .0
    (-16.0, -14.0)     12     .1
    (-14.0, -12.0)     58     .7 ••
    (-12.0, -10.0)    200    2.4 •••••••
    (-10.0,  -8.0)    345    4.2 ••••••••••••
    ( -8.0,  -6.0)    612    7.4 ••••••••••••••••••••••
    ( -6.0,  -4.0)    814    9.9 •••••••••••••••••••••••••••••
    ( -4.0,  -2.0)    798    9.7 ••••••••••••••••••••••••••••
    ( -2.0,   0.0)   1007   12.2 ••••••••••••••••••••••••••••••••••••
    (  0.0,   2.0)   1342   16.3 ••••••••••••••••••••••••••••••••••••••••••••••••
    (  2.0,   4.0)   1079   13.1 •••••••••••••••••••••••••••••••••••••••
    (  4.0,   6.0)    781    9.5 ••••••••••••••••••••••••••••
    (  6.0,   8.0)    559    6.8 ••••••••••••••••••••
    (  8.0,  10.0)    297    3.6 •••••••••••
    ( 10.0,  12.0)    197    2.4 •••••••
    ( 12.0,  14.0)    112    1.4 ••••
```


P(1; 17M) - RESIDUALS
POSITION 51.367 N 55.583 W
MB
40.0
0.0
-40.0
SD=8.8
205.0
(1986)
255.0
305.0
355.0
40.0
90.0
140.0
190.0
240.0
DAY


AUTO-SPECTRUM
P(1; 17.M.) (MB) * P(1; 17.M.) (MB)
sd=6.7
POWER DENSITY
5000.0
4375.0
3750.0
3125.0
2500.0
1875.0
1250.0
625.0
0.0
0.0000
0.0075
0.0150
0.0225
0.0300
0.0375
0.0450
FREQUENCY (CPH)



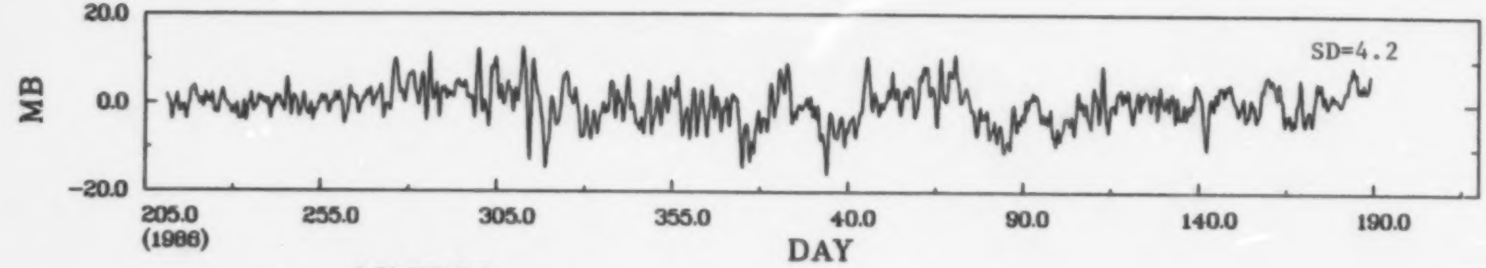
```
HISTOGRAM OF P(  1;  17M)      TIDAL RESIDUALS  (MB)
 ST. ANTHONY'S
 CRUISE    86023.   STATION        1.    LAT   51.3667    LONG   55.5833
 INSTRUMENT               BOTTOM DEPTH   17.0 METRES
 SAMPLED EACH      3600. SECS      START TIME   1: 0: 0 Z    6/ 8/1986

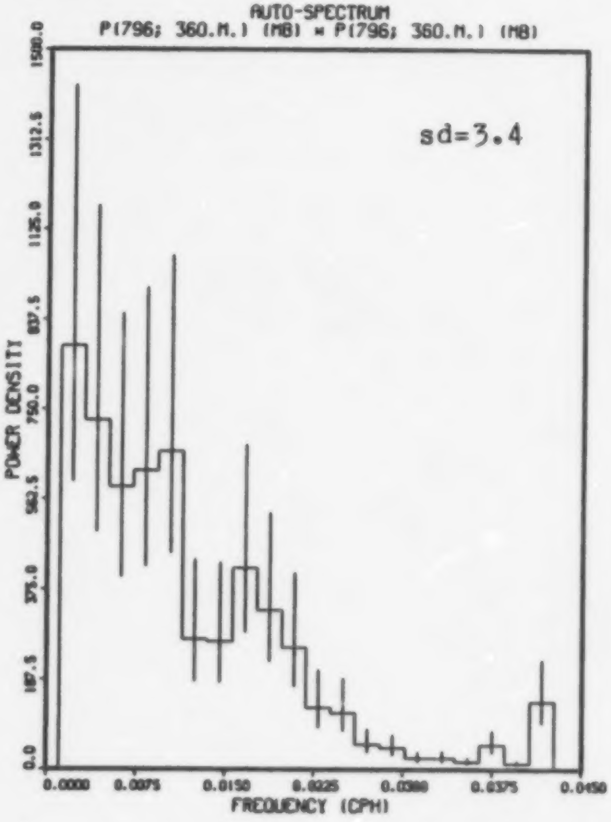
TOTAL NO. OF SAMPLES   8929
NO. OUT OF RANGE         16

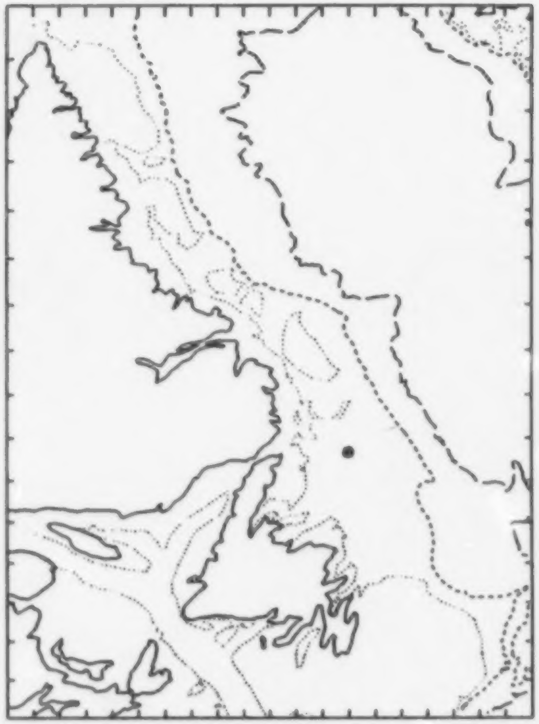
        BAND         NUMBER  PER
                             CENT

    (-30.0, -28.0)       4     .0
    (-28.0, -26.0)       5     .1
    (-26.0, -24.0)      15     .2 •
    (-24.0, -22.0)      11     .1 •
    (-22.0, -20.0)      16     .2 •
    (-20.0, -18.0)      31     .3 ••
    (-18.0, -16.0)      90    1.0 •••••
    (-16.0, -14.0)     204    2.3 •••••••••••
    (-14.0, -12.0)     306    3.4 •••••••••••••••••
    (-12.0, -10.0)     280    3.1 ••••••••••••••••
    (-10.0,  -8.0)     564    6.3 •••••••••••••••••••••••••••••••
    ( -8.0,  -6.0)     660    7.4 •••••••••••••••••••••••••••••••••••••
    ( -6.0,  -4.0)     813    9.1 •••••••••••••••••••••••••••••••••••••••••••••
    ( -4.0,  -2.0)     715    8.0 ••••••••••••••••••••••••••••••••••••••••
    ( -2.0,   0.0)     789    8.8 ••••••••••••••••••••••••••••••••••••••••••••
    (  0.0,   2.0)     882    9.9 •••••••••••••••••••••••••••••••••••••••••••••••••
    (  2.0,   4.0)     821    9.2 ••••••••••••••••••••••••••••••••••••••••••••••
    (  4.0,   6.0)     630    7.1 •••••••••••••••••••••••••••••••••••
    (  6.0,   8.0)     560    6.3 •••••••••••••••••••••••••••••••
    (  8.0,  10.0)     398    4.5 ••••••••••••••••••••••
    ( 10.0,  12.0)     361    4.0 ••••••••••••••••••••
    ( 12.0,  14.0)     220    2.5 ••••••••••••
    ( 14.0,  16.0)     125    1.4 •••••••
    ( 16.0,  18.0)     117    1.3 ••••••
    ( 18.0,  20.0)      78     .9 ••••
    ( 20.0,  22.0)      81     .9 ••••
    ( 22.0,  24.0)      56     .6 •••
    ( 24.0,  26.0)      20     .2 •
    ( 26.0,  28.0)      16     .2 •
    ( 28.0,  30.0)      15     .2 •
    ( 30.0,  32.0)       6     .1
    ( 32.0,  34.0)       9     .1
    ( 34.0,  36.0)       6     .1
    ( 36.0,  38.0)       2     .0
    ( 38.0,  40.0)       3     .0
    ( 40.0,  42.0)       4     .0
```

P(796; 360M) – RESIDUALS
POSITION 51.665 N 52.994 W







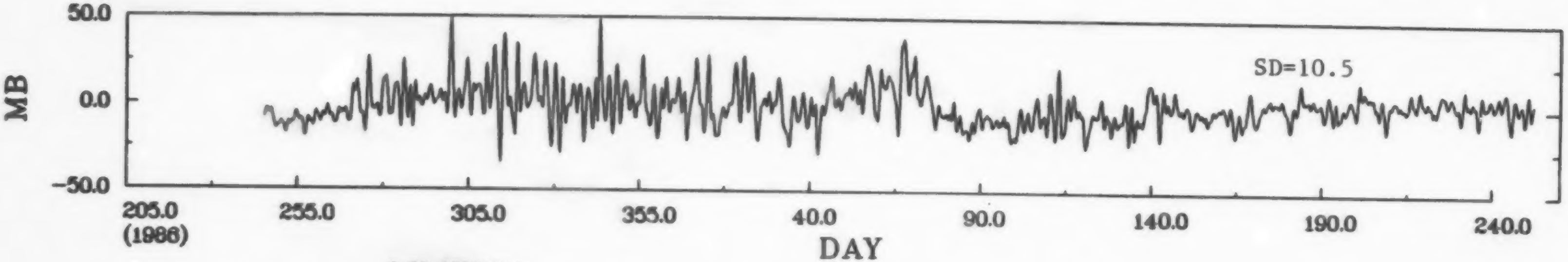
```
HISTOGRAM OF P(796; 360M)      TIDAL RESIDUALS  (MB)
 OFFSHORE ST. ANTHONY'S
 CRUISE    86021.   STATION      796.    LAT   51.6652    LONG   52.9937
 INSTRUMENT                BOTTOM DEPTH  360.0 METRES
 SAMPLED EACH     3600. SECS      START TIME   1: 0: 0 Z   30/ 7/1986

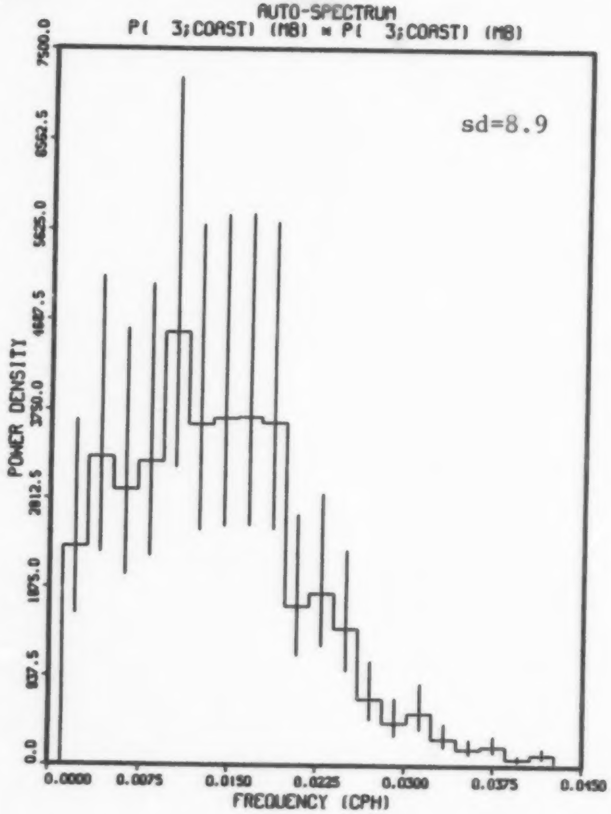
TOTAL NO. OF SAMPLES   8237
NO. OUT OF RANGE          0

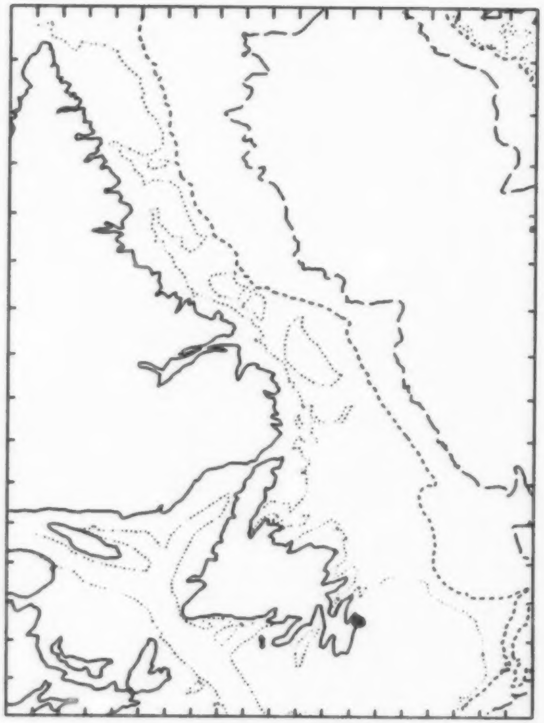

        BAND          NUMBER  PER
                              CENT


    (-18.0, -16.0)       2     .0
    (-16.0, -14.0)      23     .3 *
    (-14.0, -12.0)      35     .4 *
    (-12.0, -10.0)      76     .9 **
    (-10.0,  -8.0)     169    2.1 ****
    ( -8.0,  -6.0)     399    4.8 **********
    ( -6.0,  -4.0)     591    7.2 ****************
    ( -4.0,  -2.0)    1171   14.2 *******************************
    ( -2.0,   0.0)    1563   19.0 *****************************************
    (  0.0,   2.0)    1855   22.5 ************************************************
    (  2.0,   4.0)    1281   15.6 **********************************
    (  4.0,   6.0)     512    6.2 *************
    (  6.0,   8.0)     341    4.1 *********
    (  8.0,  10.0)     135    1.6 ****
    ( 10.0,  12.0)      69     .8 **
    ( 12.0,  14.0)      15     .2
```

P(3;COAST) - RESIDUALS
POSITION 47.467 N 52.767 W







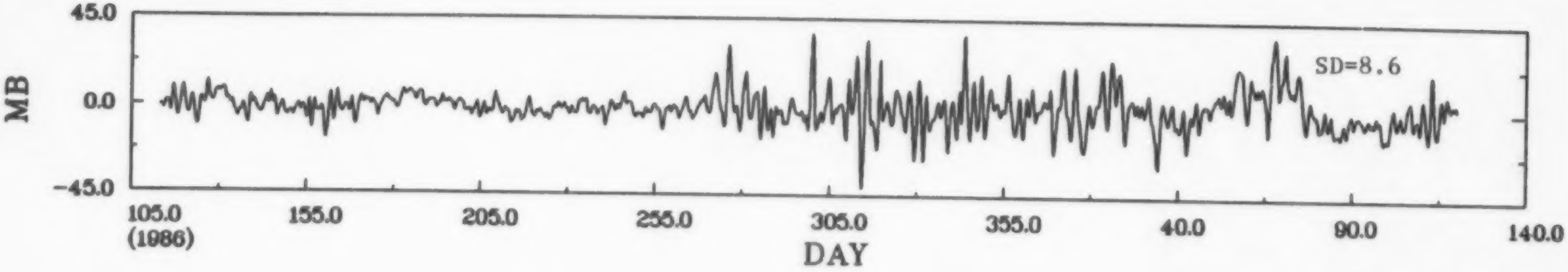
```
HISTOGRAM OF P(  3;COAST)      TIDAL RESIDUALS   (MB)
 GRAND BANK
 CRUISE     99999.    STATION         3.     LAT   47.4667     LONG   52.7667
 INSTRUMENT                BOTTOM DEPTH    8.2 METRES
 SAMPLED EACH      3600. SECS       START TIME   1: 0: 0 Z     2/ 9/1986

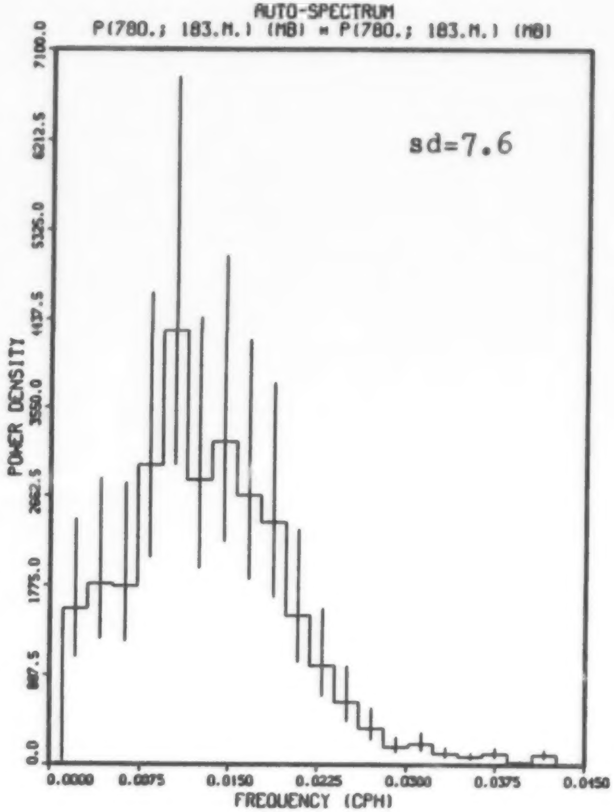
TOTAL NO. OF SAMPLES   8936
NO. OUT OF RANGE          0

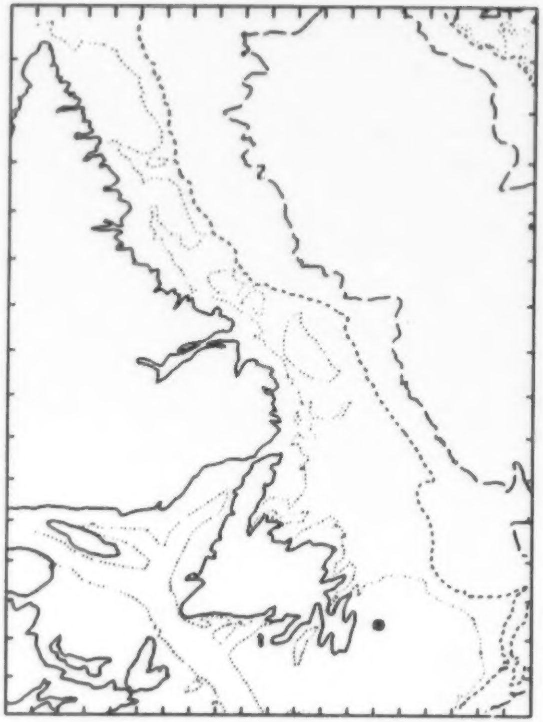

        BAND          NUMBER  PER
                              CENT


    (-36.0, -34.0)       2     .0
    (-34.0, -32.0)       4     .0
    (-32.0, -30.0)       3     .0
    (-30.0, -28.0)      12     .1 •
    (-28.0, -26.0)       9     .1
    (-26.0, -24.0)      15     .2 •
    (-24.0, -22.0)      35     .4 ••
    (-22.0, -20.0)      59     .7 •••
    (-20.0, -18.0)     112    1.3 ••••••
    (-18.0, -16.0)     176    2.0 ••••••••••
    (-16.0, -14.0)     183    2.0 ••••••••••
    (-14.0, -12.0)     314    3.5 •••••••••••••••••
    (-12.0, -10.0)     485    5.4 •••••••••••••••••••••••••••
    (-10.0,  -8.0)     471    5.3 ••••••••••••••••••••••••••
    ( -8.0,  -6.0)     622    7.0 •••••••••••••••••••••••••••••••••••
    ( -6.0,  -4.0)     734    8.2 •••••••••••••••••••••••••••••••••••••••••
    ( -4.0,  -2.0)     675    7.6 •••••••••••••••••••••••••••••••••••••
    ( -2.0,   0.0)     723    8.1 ••••••••••••••••••••••••••••••••••••••••
    (  0.0,   2.0)     882    9.9 ••••••••••••••••••••••••••••••••••••••••••••••••
    (  2.0,   4.0)     722    8.1 ••••••••••••••••••••••••••••••••••••••••
    (  4.0,   6.0)     590    6.6 •••••••••••••••••••••••••••••••••
    (  6.0,   8.0)     494    5.5 •••••••••••••••••••••••••••
    (  8.0,  10.0)     352    3.9 ••••••••••••••••••••
    ( 10.0,  12.0)     316    3.5 ••••••••••••••••••
    ( 12.0,  14.0)     195    2.2 •••••••••••
    ( 14.0,  16.0)     155    1.7 •••••••••
    ( 16.0,  18.0)     114    1.3 ••••••
    ( 18.0,  20.0)      82     .9 •••••
    ( 20.0,  22.0)      65     .7 ••••
    ( 22.0,  24.0)      81     .9 ••••
    ( 24.0,  26.0)      63     .7 •••
    ( 26.0,  28.0)      43     .5 ••
    ( 28.0,  30.0)      36     .4 ••
    ( 30.0,  32.0)      17     .2 •
    ( 32.0,  34.0)      11     .1 •
    ( 34.0,  36.0)      28     .3 ••
    ( 36.0,  38.0)      14     .2 •
    ( 38.0,  40.0)      14     .2 •
    ( 40.0,  42.0)       8     .1
    ( 42.0,  44.0)       3     .0
    ( 44.0,  46.0)       4     .0
    ( 46.0,  48.0)       5     .1
    ( 48.0,  50.0)       8     .1
```

P(780; 183M) - RESIDUALS
POSITION 47.402 N 51.802 W







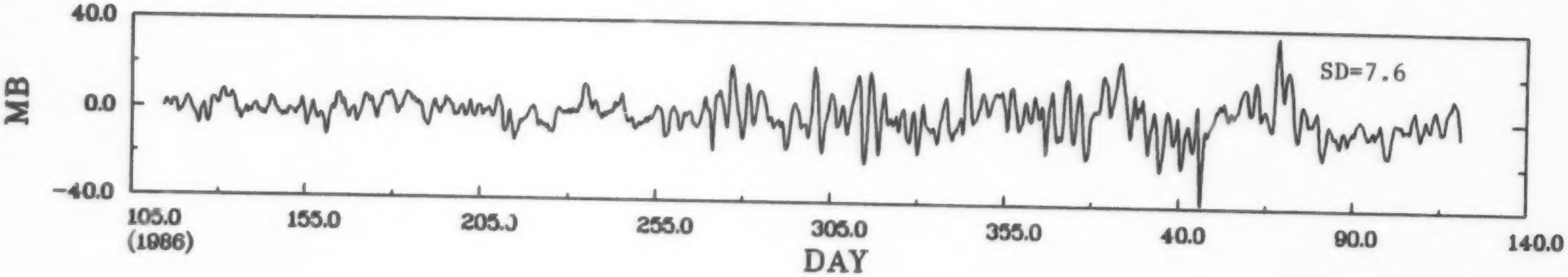
```
HISTOGRAM OF P(780; 183M)      TIDAL RESIDUALS  (MB)
 GRAND BANK
 CRUISE    86005.   STATION      780.    LAT   47.4018    LONG   51.8018
 INSTRUMENT              BOTTOM DEPTH  183.1 METRES
 SAMPLED EACH     3600. SECS      START TIME   1: 0: 0 Z   23/ 4/1986

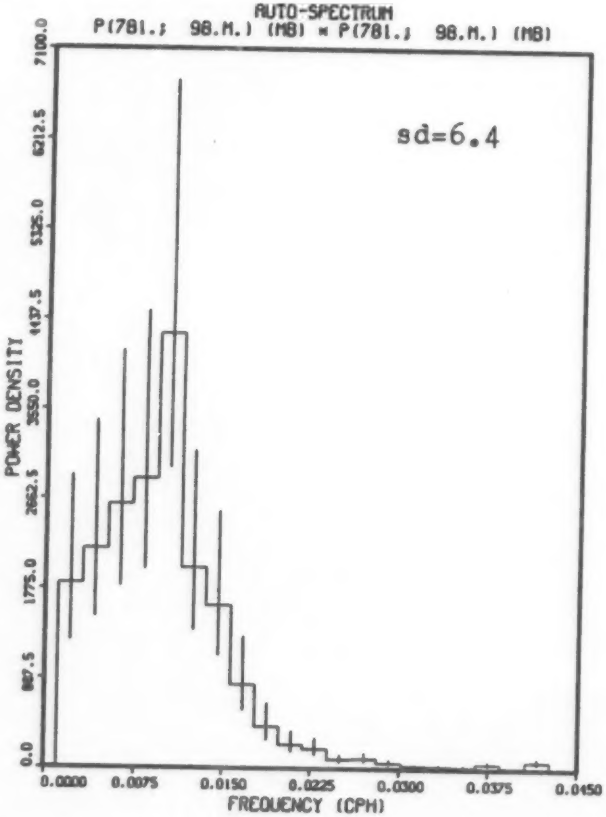
TOTAL NO. OF SAMPLES   8932
NO. OUT OF RANGE          0

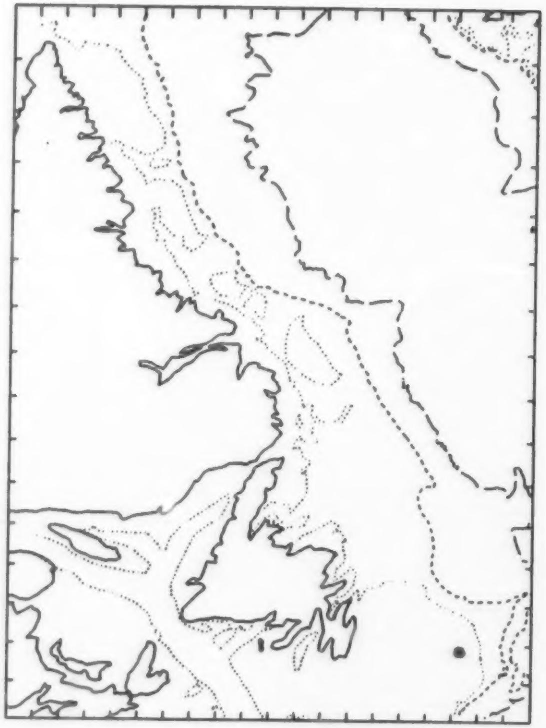

        BAND         NUMBER  PER
                             CENT


    (-42.0, -40.0)       6      .1
    (-40.0, -38.0)       3      .0
    (-38.0, -36.0)       2      .0
    (-36.0, -34.0)       2      .0
    (-34.0, -32.0)       1      .0
    (-32.0, -30.0)       2      .0
    (-30.0, -28.0)      12      .1
    (-28.0, -26.0)      14      .2 *
    (-26.0, -24.0)      13      .1
    (-24.0, -22.0)      19      .2 *
    (-22.0, -20.0)      52      .6 **
    (-20.0, -18.0)      29      .3 *
    (-18.0, -16.0)      54      .6 **
    (-16.0, -14.0)     129     1.4 *****
    (-14.0, -12.0)     176     2.0 *******
    (-12.0, -10.0)     254     2.8 **********
    (-10.0,  -8.0)     347     3.9 *************
    ( -8.0,  -6.0)     517     5.8 ********************
    ( -6.0,  -4.0)     740     8.3 ****************************
    ( -4.0,  -2.0)    1202    13.5 **********************************************
    ( -2.0,   0.0)    1143    12.8 ********************************************
    (  0.0,   2.0)    1036    11.6 ****************************************
    (  2.0,   4.0)    1046    11.7 ****************************************
    (  4.0,   6.0)     552     6.2 *********************
    (  6.0,   8.0)     434     4.9 *****************
    (  8.0,  10.0)     308     3.4 ************
    ( 10.0,  12.0)     170     1.9 *******
    ( 12.0,  14.0)     120     1.3 *****
    ( 14.0,  16.0)     105     1.2 ****
    ( 16.0,  18.0)     102     1.1 ****
    ( 18.0,  20.0)      75      .8 ***
    ( 20.0,  22.0)      91     1.0 ***
    ( 22.0,  24.0)      29      .3 *
    ( 24.0,  26.0)      30      .3 *
    ( 26.0,  28.0)      28      .3 *
    ( 28.0,  30.0)      19      .2 *
    ( 30.0,  32.0)      22      .2 *
    ( 32.0,  34.0)      12      .1
    ( 34.0,  36.0)      12      .1
    ( 36.0,  38.0)      15      .2 *
    ( 38.0,  40.0)       9      .1
```

P(781; 98M) - RESIDUALS
POSITION 46.862 N 48.717 W







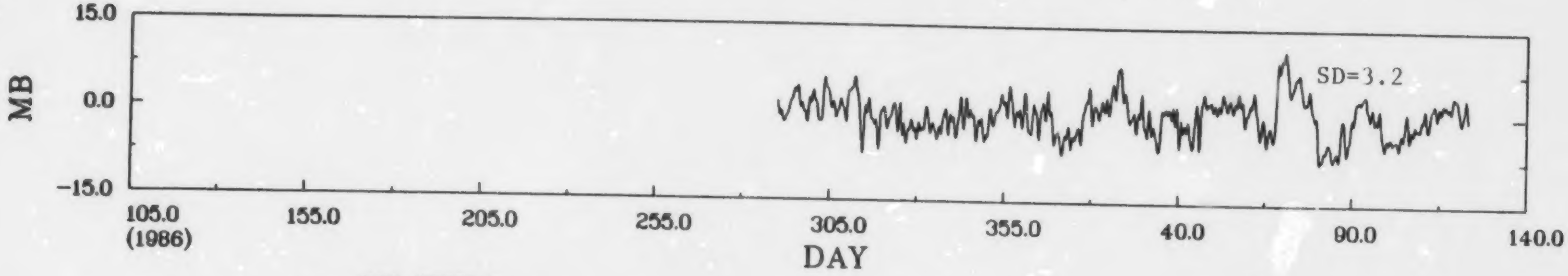
```
HISTOGRAM OF P(781;  98M)      TIDAL RESIDUALS  (MB)
 GRAND BANK
 CRUISE    86005.   STATION       781.    LAT   46.8618    LONG   48.7167
 INSTRUMENT                BOTTOM DEPTH   98.3 METRES
 SAMPLED EACH     3600. SECS      START TIME   1: 0: 0 Z   24/ 4/1986

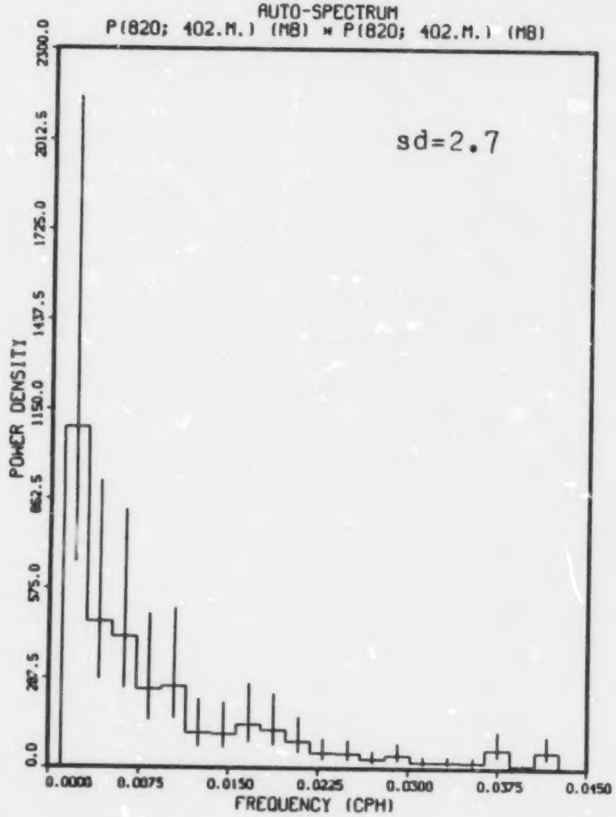
TOTAL NO. OF SAMPLES   8932
NO. OUT OF RANGE          0

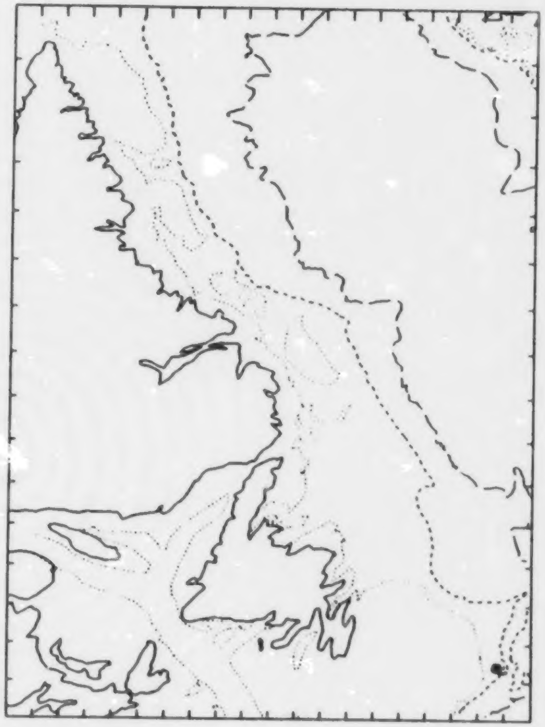
        BAND          NUMBER  PER
                              CENT

    (-40.0, -38.0)       5      .1
    (-38.0, -36.0)       4      .0
    (-36.0, -34.0)       2      .0
    (-34.0, -32.0)       3      .0
    (-32.0, -30.0)       2      .0
    (-30.0, -28.0)       3      .0
    (-28.0, -26.0)       2      .0
    (-26.0, -24.0)       1      .0
    (-24.0, -22.0)      22      .2 *
    (-22.0, -20.0)      33      .4 *
    (-20.0, -18.0)      34      .4 *
    (-18.0, -16.0)      78      .9 ***
    (-16.0, -14.0)     124     1.4 *****
    (-14.0, -12.0)     103     1.2 ****
    (-12.0, -10.0)     224     2.5 *********
    (-10.0,  -8.0)     315     3.5 ************
    ( -8.0,  -6.0)     585     6.5 **********************
    ( -6.0,  -4.0)     860     9.6 *********************************
    ( -4.0,  -2.0)    1002    11.2 ***************************************
    ( -2.0,   0.0)    1253    14.0 ************************************************
    (  0.0,   2.0)    1108    12.4 *******************************************
    (  2.0,   4.0)     971    10.9 *************************************
    (  4.0,   6.0)     685     7.7 **************************
    (  6.0,   8.0)     482     5.4 *******************
    (  8.0,  10.0)     308     3.4 ************
    ( 10.0,  12.0)     211     2.4 ********
    ( 12.0,  14.0)     128     1.4 *****
    ( 14.0,  16.0)      69      .8 ***
    ( 16.0,  18.0)     113     1.3 ****
    ( 18.0,  20.0)      68      .8 ***
    ( 20.0,  22.0)      66      .7 ***
    ( 22.0,  24.0)      20      .2 *
    ( 24.0,  26.0)      18      .2 *
    ( 26.0,  28.0)       3      .0
    ( 28.0,  30.0)       4      .0
    ( 30.0,  32.0)       4      .0
    ( 32.0,  34.0)       5      .1
    ( 34.0,  36.0)       5      .1
    ( 36.0,  38.0)       9      .1
```

P(820; 402M) - RESIDUALS
POSITION 46.420 N 47.274 W







```
HISTOGRAM OF P(820; 402M)      TIDAL RESIDUALS  (MB)
 GRAND BANK
 CRUISE    86031.   STATION      820.    LAT   46.4198    LONG   47.2735
 INSTRUMENT               BOTTOM DEPTH  402.0 METRES
 SAMPLED EACH     3600. SECS      START TIME   1: 0: 0 Z   17/10/1986

TOTAL NO. OF SAMPLES   4758
NO. OUT OF RANGE          0


        BAND         NUMBER  PER
                             CENT


    (-10.0,  -8.0)      3     .1
    ( -8.0,  -6.0)    125    2.6 *****
    ( -6.0,  -4.0)    404    8.5 *****************
    ( -4.0,  -2.0)    791   16.6 *********************************
    ( -2.0,   0.0)   1028   21.6 *******************************************
    (  0.0,   2.0)   1191   25.0 ************************************************
    (  2.0,   4.0)    805   16.9 **********************************
    (  4.0,   6.0)    242    5.1 **********
    (  6.0,   8.0)     84    1.8 ***
    (  8.0,  10.0)     62    1.3 ***
    ( 10.0,  12.0)     23     .5 *
```

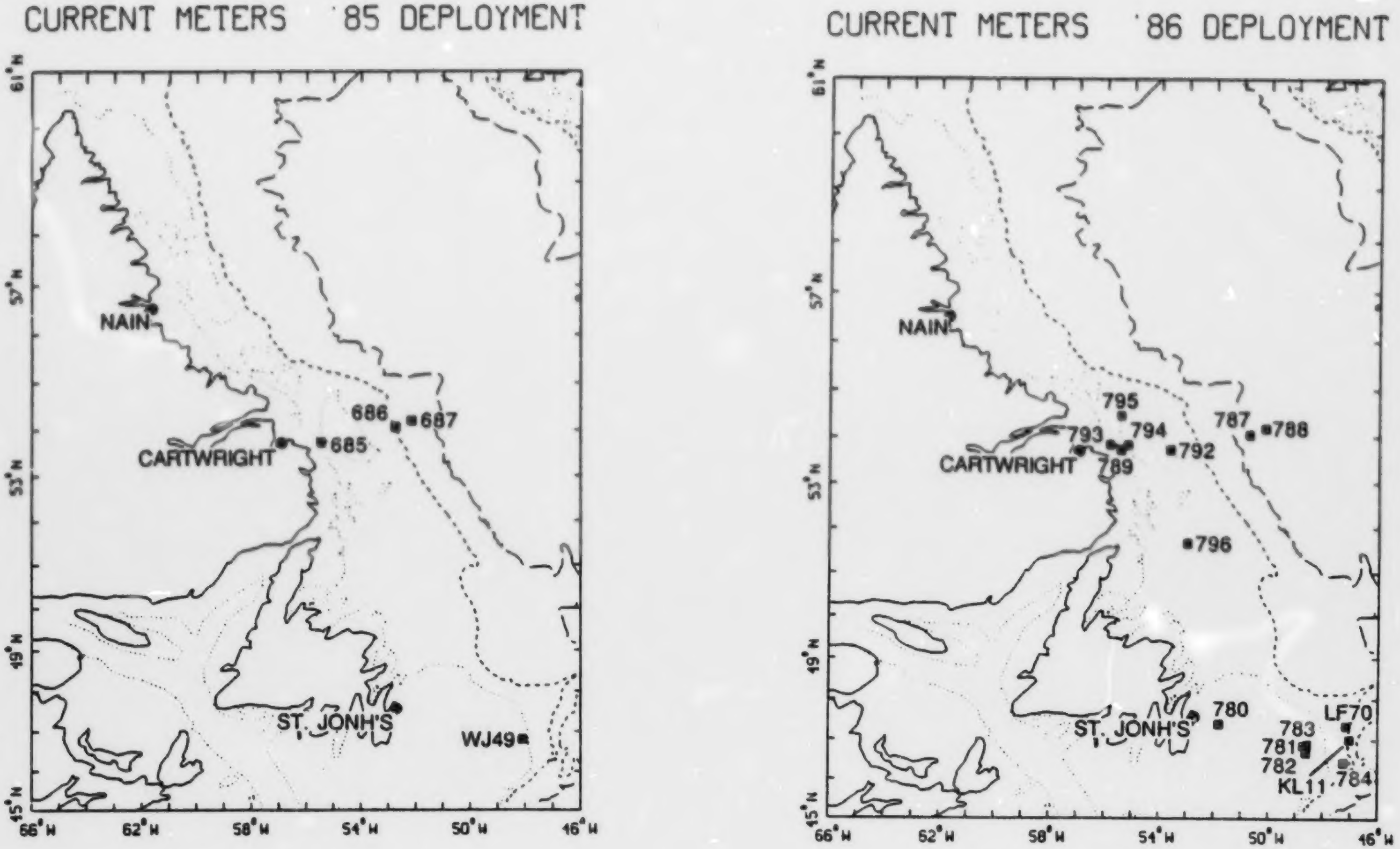

CURRENT METERS '85 DEPLOYMENT
CURRENT METERS '86 DEPLOYMENT
NAIN
CARTWRIGHT
ST. JONH'S
686
687
685
WJ49
795
793
794
789
792
787
788
796
780
783
781
782
784
LF70
KL11
61°N
57°N
53°N
49°N
45°N
66°W
62°W
58°W
54°W
50°W
46°W

Figure 14. Locations of current meter moorings during 1985/86 and 1986/87. Isobaths are indicated by (·····) 200 m, (- - - -) 1000 m and (— —) 3000m.

CURRENT METERS

STATION	INSTR. TYPE	SAMPLING RATES (SEC)	LAT.	LONG.	WATER DEPTH (M)	START DATE	LENGTH (DAYS)
(795; 200M)	RCM	3600	54.46N	55.44W	200	5/ 8/86	360
(793; 80M)	RCM	3600	53.84N	55.83W	80	4/ 8/86	327
(685; 198M)	RCM	3600	53.73N	55.46W	200	6/ 7/85	394
(789; 200M)	RCM	3600	53.73N	55.45W	200	4/ 8/86	360
(686; 200M)	RCM	3600	54.06N	52.76W	1004	4/ 7/85	394
(686; 400M)	RCM	3600	54.06N	52.76W	1004	4/ 7/85	394
(686; 985M)	RCM	3600	54.06N	52.76W	1004	4/ 7/85	394
(687; 200M)	RCM	3600	54.20N	52.17W	2501	4/ 7/85	394
(687; 400M)	RCM	3600	54.20N	52.17W	2501	4/ 7/85	394
(687;1000M)	RCM	3600	54.20N	52.17W	2501	4/ 7/85	394
(687;2485M)	RCM	3600	54.20N	52.17W	2501	4/ 7/85	205
(WJ49; 14M)	ACM2	1200	46.81N	48.11W	120	10/ 8/85	100
(WJ49; 57M)	RCM4	1200	46.81N	48.11W	120	10/ 8/85	100
(WJ49; 97M)	RCM4	1200	46.81N	48.11W	120	10/ 8/85	100
(794; 147M)	RCM	3600	53.84N	55.18W	153	4/ 8/86	360
(792; 200M)	RCM	3600	53.73N	53.62W	200	3/ 8/86	354
(787; 211M)	RCM	3600	54.05N	50.74W	1011	2/ 8/86	355
(787; 411M)	RCM	3600	54.05N	50.74W	1011	2/ 8/86	168
(787; 996M)	RCM	3600	54.05N	50.74W	1011	2/ 8/86	355
(788; 183M)	RCM	3600	54.18N	50.15W	2483	2/ 8/86	355
(788; 383M)	RCM	3600	54.18N	50.15W	2483	2/ 8/86	167
(788; 983M)	RCM	3600	54.18N	50.15W	2483	2/ 8/86	291
(788;2468M)	RCM	3600	54.18N	50.15W	2483	2/ 8/86	355
(796; 360M)	RCM	3600	51.67N	52.99W	360	27/ 7/86	280
(780; 181M)	RCM	10800	47.40N	51.80W	182	20/ 4/86	172
(781; 20M)	RCM	1800	46.86N	48.72W	90	21/ 4/86	174
(781; 30M)	RCM	1800	46.86N	48.72W	90	21/ 4/86	174
(783; 24M)	RCM	1800	46.89N	48.60W	107	22/ 4/86	173
(783; 34M)	RCM	1800	46.89N	48.60W	107	22/ 4/86	173
(783; 64M)	RCM	1800	46.89N	48.60W	107	22/ 4/86	173
(782; 20M)	RCM	1800	46.68N	48.63W	90	21/ 4/86	174
(782; 30M)	RCM	1800	46.68N	48.63W	90	21/ 4/86	174
(LF70;346M)	RCM4	1200	47.35N	47.16W	722	22/ 4/86	92
(LF70;589M)	RCM4	1200	47.35N	47.16W	722	22/ 4/86	92
(KL11;611M)	RCM4	1200	47.01N	47.05W	1100	15/ 4/86	109
(KL11;950M)	RCM4	1200	47.01N	47.05W	1100	15/ 4/86	109
(784; 400M)	RCM	10800	46.44N	47.26W	401	24/ 4/86	173

Table 3. Current meter identifications. Each instrument is identified by a station number and a nominal instrument depth.

Figure 15. Time intervals during which each of the current meters returned useful data. The location of each gauge is given in Table 3.

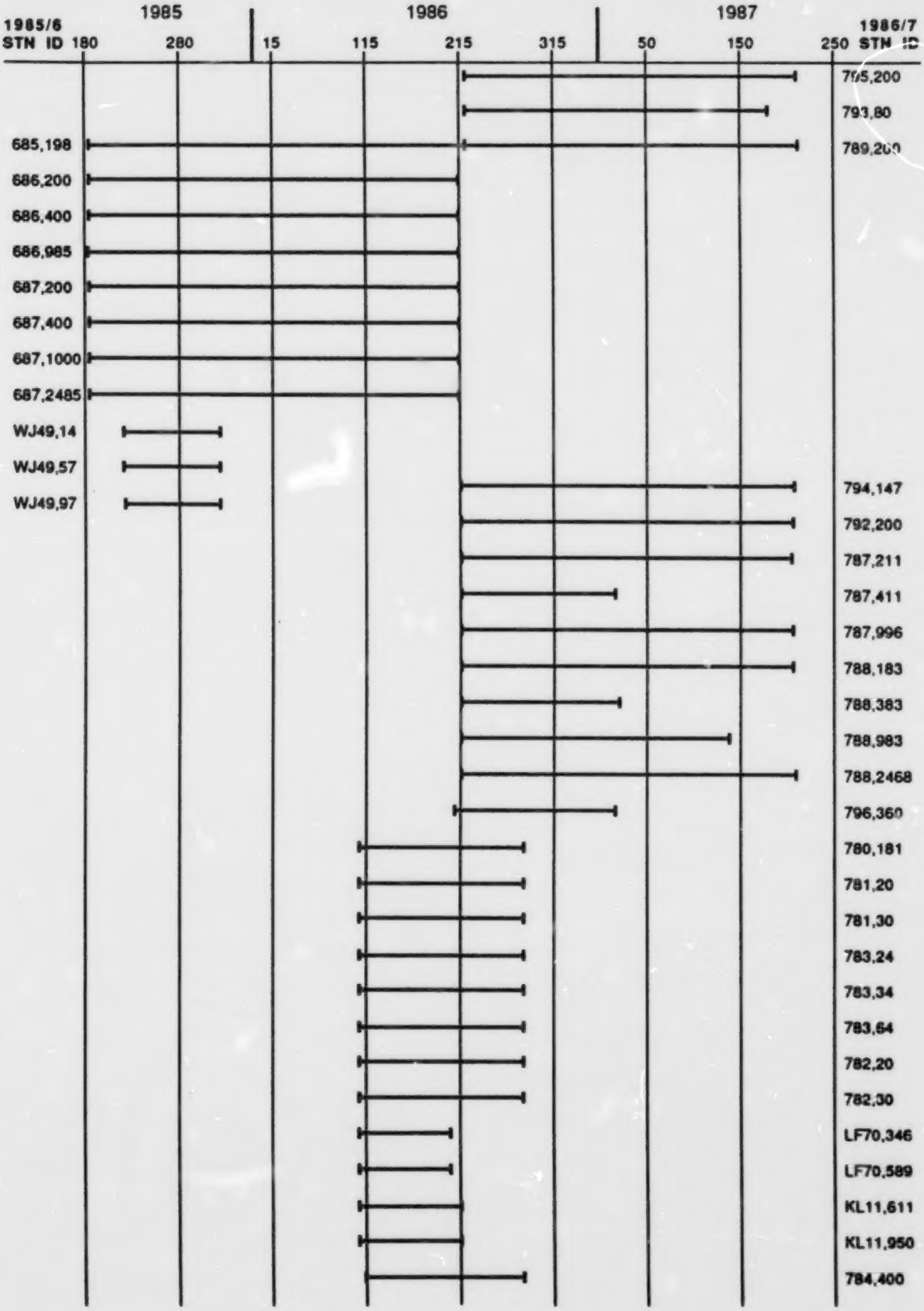


Table 4

Tidal constituents determined from analysis of each of the current meter records. The analysis was done on 29 day blocks and results were averaged to give mean values over the full record. Standard deviations over all blocks are presented to give an idea of the reliability of the results. MB ≡ millibars.

CONSTITUENT M2

		ELLIPSE				
		MAJOR AXIS			MINOR AXIS	
STATION	# BLOCKS	AMPLITUDE (M/S)*100	ORIENTATION (DEG TRUE)	PHASE (DEG)	AMPLITUDE (M/S)*100	SENSE OF ROTATION
(795; 200M)	12	4.3	118.	33.8	0.5	C
(793; 80M)	11	5.3	121.	29.9	2.1	A
(685; 198M)	14	3.6	1.	172.0	1.5	A
(789; 200M)	12	3.3	163.	6.7	1.6	A
(686; 200M)	14	3.4	114.	74.8	0.1	C
(686; 400M)	14	4.0	124.	59.3	0.9	C
(686; 985M)	14	4.1	137.	44.3	0.7	C
(687; 200M)	14	3.2	126.	66.7	0.4	C
(687; 400M)	14	3.0	133.	62.9	0.1	C
(687;1000M)	14	2.2	137.	52.8	0.0	C
(687;2485M)	7	2.3	144.	28.1	0.3	A
(WJ49; 14M)	3	4.3	90.	58.2	2.3	C
(WJ49; 57M)	3	5.6	91.	55.5	2.8	C
(WJ49; 97M)	3	5.1	87.	59.3	2.3	C
(794; 147M)	12	4.1	144.	28.5	1.0	C
(792; 200M)	12	4.5	127.	38.0	1.8	C
(787; 211M)	12	3.5	125.	69.1	0.6	C
(787; 411M)	6	4.1	125.	64.1	1.2	C
(787; 996M)	7	4.1	141.	42.3	0.6	C
(788; 183M)	12	3.3	134.	61.4	0.4	C
(788; 383M)	6	3.1	129.	62.4	0.3	C
(788; 983M)	10	3.0	139.	55.7	0.1	C
(788;2468M)	12	3.1	142.	44.2	0.1	A
(796; 360M)	6	1.7	118.	53.2	0.5	C
(780; 181M)	6	3.1	48.	48.6	0.3	C
(781; 20M)	6	6.7	83.	55.9	3.7	C
(781; 30M)	5	7.2	79.	56.1	3.9	C
(783; 24M)	6	6.3	81.	59.4	3.6	C
(783; 34M)	6	6.3	82.	55.8	3.5	C
(783; 64M)	6	7.6	82.	59.7	4.1	C
(782; 20M)	5	7.1	88.	56.5	4.2	C
(782; 30M)	6	7.2	89.	53.2	4.4	C
(LF70;346M)	3	1.1	110.	35.2	0.2	A
(LF70;589M)	3	1.5	128.	12.8	0.1	C
(KL11;611M)	4	0.9	156.	13.3	0.2	A
(KL11;950M)	4	1.2	146.	29.5	0.3	C
(784; 400M)	6	1.1	120.	28.6	0.2	C

CONSTITUENT M2

U		V		
AMPLITUDE (M/S)•100	PHASE (DEG)	AMPLITUDE (M/S)•100	PHASE (DEG)	STATION
3.8(+/-0.5)	30.0(+/- 10.9)	2.1(+/-0.5)	227.3(+/- 14.7)	(795; 200M)
4.7(+/-0.7)	43.1(+/- 11.9)	3.3(+/-0.9)	177.1(+/- 17.4)	(793; 80M)
1.5(+/-0.5)	84.8(+/- 22.3)	3.6(+/-0.5)	172.4(+/- 11.1)	(685; 198M)
1.8(+/-0.4)	64.7(+/- 16.4)	3.2(+/-0.3)	178.6(+/- 11.9)	(789; 200M)
3.1(+/-0.5)	73.8(+/- 14.2)	1.4(+/-0.7)	260.2(+/- 41.8)	(686; 200M)
3.4(+/-0.4)	50.6(+/- 5.8)	2.4(+/-0.3)	257.7(+/- 15.1)	(686; 400M)
2.8(+/-0.5)	33.8(+/- 10.5)	3.0(+/-0.4)	233.5(+/- 8.5)	(686; 985M)
2.6(+/-0.4)	61.5(+/- 10.5)	1.9(+/-0.3)	256.6(+/- 12.6)	(687; 200M)
2.2(+/-0.3)	60.4(+/- 8.3)	2.1(+/-0.2)	245.8(+/- 5.8)	(687; 400M)
1.5(+/-0.4)	51.9(+/- 33.4)	1.6(+/-0.5)	233.6(+/- 14.2)	(687;1000M)
1.4(+/-0.3)	36.5(+/- 15.5)	1.9(+/-0.3)	203.5(+/- 7.7)	(687;2485M)
4.3(+/-0.3)	58.0(+/- 3.3)	2.3(+/-0.1)	327.6(+/- 6.5)	(WJ49; 14M)
5.6(+/-0.2)	54.8(+/- 3.3)	2.8(+/-0.4)	322.8(+/- 2.3)	(WJ49; 57M)
5.1(+/-0.4)	60.5(+/- 4.1)	2.3(+/-0.3)	334.9(+/- 8.3)	(WJ49; 97M)
2.5(+/-0.3)	9.8(+/- 10.9)	3.4(+/-0.5)	218.5(+/- 5.7)	(794; 147M)
3.8(+/-0.5)	21.7(+/- 5.9)	3.1(+/-0.4)	245.7(+/- 8.7)	(792; 200M)
2.9(+/-0.5)	62.2(+/- 5.6)	2.1(+/-0.4)	262.5(+/- 15.7)	(787; 211M)
3.4(+/-0.3)	52.4(+/- 4.5)	2.5(+/-0.3)	266.6(+/- 8.6)	(787; 411M)
2.6(+/-0.4)	32.2(+/- 10.8)	3.2(+/-0.8)	229.0(+/- 8.4)	(787; 995M)
2.4(+/-0.3)	53.8(+/- 6.6)	2.3(+/-0.2)	249.2(+/- 7.5)	(788; 183M)
2.4(+/-0.2)	58.3(+/- 6.2)	2.0(+/-0.2)	248.7(+/- 7.3)	(788; 383M)
2.0(+/-0.1)	52.5(+/- 3.5)	2.3(+/-0.2)	238.2(+/- 3.8)	(788; 983M)
1.9(+/-0.5)	47.7(+/- 12.9)	2.4(+/-0.4)	222.0(+/- 11.7)	(788;2468M)
1.5(+/-0.3)	44.1(+/- 13.2)	0.9(+/-0.1)	262.8(+/- 8.6)	(796; 360M)
2.3(+/-0.2)	53.2(+/- 5.7)	2.1(+/-0.2)	42.8(+/- 4.8)	(780; 181M)
6.7(+/-0.8)	59.9(+/- 1.5)	3.8(+/-0.6)	339.1(+/- 5.4)	(781; 20M)
7.1(+/-0.3)	62.1(+/- 2.9)	4.1(+/-0.4)	345.9(+/- 2.9)	(781; 30M)
6.2(+/-0.5)	64.8(+/- 5.2)	3.7(+/-0.6)	345.5(+/- 8.3)	(783; 24M)
6.2(+/-0.4)	60.3(+/- 3.3)	3.6(+/-0.4)	339.9(+/- 9.2)	(783; 34M)
7.6(+/-0.8)	64.2(+/- 2.9)	4.2(+/-0.5)	345.0(+/- 8.9)	(783; 64M)
7.1(+/-0.5)	57.8(+/- 5.7)	4.2(+/-0.6)	330.2(+/- 9.2)	(782; 20M)
7.2(+/-0.5)	54.0(+/- 5.9)	4.4(+/-0.5)	325.3(+/- 7.7)	(782; 30M)
1.0(+/-0.2)	38.8(+/- 11.4)	0.4(+/-0.1)	189.4(+/- 31.6)	(LF70;346M)
1.2(+/-0.1)	9.4(+/- 13.6)	0.9(+/-0.2)	198.3(+/- 3.6)	(LF70;589M)
0.4(+/-0.2)	40.0(+/- 30.1)	0.9(+/-0.2)	187.5(+/- 8.5)	(KL11;611M)
0.7(+/-0.2)	12.8(+/- 12.6)	1.0(+/-0.2)	217.6(+/- 11.5)	(KL11;950M)
1.0(+/-0.4)	23.0(+/- 33.8)	0.6(+/-0.5)	225.3(+/- 65.1)	(784; 400M)

CONSTITUENT S2

		ELLIPSE				
		MAJOR AXIS			MINOR AXIS	
STATION	# BLOCKS	AMPLITUDE (M/S)*100	ORIENTATION (DEG TRUE)	PHASE (DEG)	AMPLITUDE (M/S)*100	SENSE OF ROTATION
(795; 200M)	12	1.6	112.	74.9	0.5	C
(793; 80M)	11	1.5	109.	74.6	0.7	A
(685; 198M)	14	1.2	173.	36.7	0.3	A
(789; 200M)	12	1.1	156.	43.4	0.4	A
(686; 200M)	14	1.0	124.	99.9	0.2	C
(686; 400M)	14	1.1	123.	90.0	0.3	C
(686; 985M)	14	1.4	134.	84.8	0.4	C
(687; 200M)	14	0.8	135.	95.9	0.1	A
(687; 400M)	14	0.9	142.	89.3	0.0	A
(687;1000M)	14	0.8	129.	100.3	0.1	C
(687;2485M)	7	0.8	133.	73.2	0.1	A
(WJ49; 14M)	3	1.5	130.	70.5	0.6	C
(WJ49; 57M)	3	2.9	111.	80.3	1.5	C
(WJ49; 97M)	3	2.4	110.	81.1	1.0	C
(794; 147M)	12	1.4	132.	60.4	0.3	C
(792; 200M)	12	1.7	113.	70.7	0.9	C
(787; 211M)	12	1.1	123.	102.5	0.2	C
(787; 411M)	6	1.3	122.	96.2	0.3	C
(787; 996M)	7	1.4	139.	82.2	0.3	C
(788; 183M)	12	1.1	139.	90.0	0.1	C
(788; 383M)	6	1.1	132.	85.7	0.0	C
(788; 983M)	10	1.2	135.	92.4	0.2	C
(788;2468M)	12	0.9	146.	64.0	0.2	A
(796; 360M)	6	0.7	87.	86.6	0.1	C
(780; 181M)	6	0.6	69.	94.6	0.1	A
(781; 20M)	6	1.8	110.	73.5	0.6	C
(781; 30M)	5	2.1	101.	86.4	1.0	C
(783; 24M)	6	1.9	120.	76.5	0.8	C
(783; 34M)	6	2.0	111.	86.1	0.9	C
(783; 64M)	6	2.5	98.	89.7	0.8	C
(782; 20M)	5	1.8	104.	94.8	0.8	C
(782; 30M)	6	2.3	113.	90.0	1.2	C
(LF70;346M)	3	0.5	154.	30.5	0.0	A
(LF70;589M)	3	0.4	163.	35.1	0.0	C
(KL11;611M)	4	0.5	163.	52.6	0.0	C
(KL11;950M)	4	0.6	151.	46.3	0.0	A
(784; 400M)	6	0.5	9.	231.2	0.0	A

CONSTITUENT S2

U		V		
AMPLITUDE (M/S)•100	PHASE (DEG)	AMPLITUDE (M/S)•100	PHASE (DEG)	STATION
1.5(+/-0.4)	68.3(+/- 18.5)	0.7(+/-0.4)	291.9(+/- 36.8)	(795; 200M)
1.4(+/-0.5)	83.4(+/- 25.3)	0.8(+/-0.4)	201.1(+/- 39.9)	(793; 80M)
0.3(+/-0.4)	96.9(+/- 75.0)	1.1(+/-0.4)	215.1(+/- 16.6)	(685; 198M)
0.6(+/-0.3)	85.7(+/- 30.7)	1.0(+/-0.3)	213.5(+/- 16.5)	(789; 200M)
0.8(+/-0.5)	92.1(+/- 49.9)	0.6(+/-0.5)	295.9(+/- 53.2)	(686; 200M)
1.0(+/-0.2)	80.4(+/- 16.0)	0.7(+/-0.2)	291.5(+/- 25.5)	(686; 400M)
1.1(+/-0.4)	68.2(+/- 23.3)	1.1(+/-0.4)	282.4(+/- 18.6)	(686; 985M)
0.6(+/-0.4)	101.0(+/- 48.9)	0.6(+/-0.5)	270.8(+/- 53.6)	(687; 200M)
0.5(+/-0.3)	93.3(+/- 45.6)	0.7(+/-0.4)	266.7(+/- 25.2)	(687; 400M)
0.6(+/-0.5)	92.4(+/- 60.0)	0.5(+/-0.3)	292.3(+/- 52.6)	(687;1000M)
0.6(+/-0.4)	79.3(+/- 41.9)	0.6(+/-0.3)	246.2(+/- 28.6)	(687;2485M)
1.2(+/-0.3)	53.1(+/- 5.7)	1.1(+/-0.3)	274.8(+/- 8.0)	(WJ49; 14M)
2.8(+/-0.6)	69.2(+/- 2.9)	1.8(+/-0.4)	313.2(+/- 14.6)	(WJ49; 57M)
2.3(+/-0.5)	72.8(+/- 5.3)	1.2(+/-0.3)	308.9(+/- 10.5)	(WJ49; 97M)
1.0(+/-0.4)	48.7(+/- 23.9)	0.9(+/-0.3)	254.4(+/- 21.6)	(794; 147M)
1.6(+/-0.5)	58.6(+/- 6.5)	1.1(+/-0.4)	300.5(+/- 22.7)	(792; 200M)
0.9(+/-0.4)	97.0(+/- 35.9)	0.6(+/-0.3)	295.7(+/- 38.1)	(787; 211M)
1.1(+/-0.4)	87.7(+/- 20.3)	0.7(+/-0.2)	297.8(+/- 28.7)	(787; 411M)
0.9(+/-0.4)	68.5(+/- 64.5)	1.1(+/-0.3)	272.5(+/- 10.5)	(787; 996M)
0.7(+/-0.2)	86.1(+/- 21.8)	0.8(+/-0.3)	273.0(+/- 20.3)	(788; 183M)
0.8(+/-0.2)	83.8(+/- 36.6)	0.7(+/-0.3)	268.0(+/- 26.6)	(788; 383M)
0.8(+/-0.1)	83.5(+/- 9.1)	0.8(+/-0.1)	281.3(+/- 11.4)	(788; 983M)
0.5(+/-0.2)	78.5(+/- 39.1)	0.8(+/-0.3)	237.3(+/- 21.6)	(788;2468M)
0.7(+/-0.3)	87.1(+/- 5.3)	0.1(+/-0.1)	13.1(+/- 73.8)	(796; 360M)
0.5(+/-0.1)	89.9(+/- 14.5)	0.2(+/-0.1)	123.4(+/- 34.7)	(780; 181M)
1.7(+/-0.5)	66.6(+/- 15.7)	0.8(+/-0.7)	295.8(+/- 46.5)	(781; 20M)
2.1(+/-0.4)	80.9(+/- 10.5)	1.1(+/-0.4)	334.7(+/- 23.7)	(781; 30M)
1.7(+/-0.2)	63.1(+/- 16.1)	1.2(+/-0.4)	292.3(+/- 32.0)	(783; 24M)
1.9(+/-0.2)	76.5(+/- 8.3)	1.1(+/-0.2)	315.5(+/- 21.6)	(783; 34M)
2.4(+/-0.5)	87.0(+/- 12.2)	0.9(+/-0.4)	337.3(+/- 21.9)	(783; 64M)
1.7(+/-0.7)	88.9(+/- 24.5)	0.8(+/-0.7)	334.9(+/- 38.1)	(782; 20M)
2.2(+/-0.3)	77.3(+/- 14.1)	1.5(+/-0.3)	321.5(+/- 19.4)	(782; 30M)
0.2(+/-0.2)	30.9(+/- 51.4)	0.4(+/-0.3)	210.4(+/- 27.4)	(LF70;346M)
0.1(+/-0.1)	13.0(+/- 84.8)	0.4(+/-0.2)	217.4(+/- 34.4)	(LF70;589M)
0.2(+/-0.1)	44.9(+/- 65.9)	0.5(+/-0.2)	233.3(+/- 13.3)	(KL11;611M)
0.3(+/-0.2)	48.8(+/- 28.6)	0.5(+/-0.3)	225.6(+/- 20.8)	(KL11;950M)
0.1(+/-0.5)	231.1(+/-106.5)	0.5(+/-0.3)	231.2(+/- 49.1)	(784; 400M)

CONSTITUENT N2

STATION	# BLOCKS	ELLIPSE				
		MAJOR AXIS			MINOR AXIS	
		AMPLITUDE (M/S)*100	ORIENTATION (DEG TRUE)	PHASE (DEG)	AMPLITUDE (M/S)*100	SENSE OF ROTATION
(795; 200M)	12	0.7	116.	6.9	0.1	A
(793; 80M)	11	1.2	137.	348.0	0.4	A
(685; 198M)	14	0.8	27.	109.5	0.6	A
(789; 200M)	12	0.7	174.	334.6	0.4	A
(686; 200M)	14	0.9	114.	53.6	0.2	C
(686; 400M)	14	1.0	131.	33.5	0.3	C
(686; 985M)	14	0.6	120.	42.3	0.0	C
(687; 200M)	14	1.0	136.	28.8	0.1	C
(687; 400M)	14	0.7	136.	36.8	0.0	C
(687;1000M)	14	0.7	141.	19.4	0.1	A
(687;2485M)	7	0.5	141.	8.9	0.0	A
(WJ49; 14M)	3	1.0	104.	39.3	0.3	C
(WJ49; 57M)	3	1.2	81.	57.7	0.8	C
(WJ49; 97M)	3	1.8	91.	57.0	1.4	C
(794; 147M)	12	0.9	158.	.3	0.2	C
(792; 200M)	12	1.0	126.	18.7	0.3	C
(787; 211M)	12	0.8	122.	41.6	0.2	C
(787; 411M)	6	0.8	124.	28.8	0.2	C
(787; 996M)	7	0.8	135.	17.0	0.1	C
(788; 183M)	12	0.9	132.	36.1	0.0	C
(788; 383M)	6	0.8	120.	37.5	0.0	C
(788; 983M)	10	0.6	143.	26.2	0.0	A
(788;2468M)	12	0.9	136.	15.1	0.1	C
(796; 360M)	6	0.3	106.	33.2	0.0	C
(780; 181M)	6	0.6	48.	30.6	0.0	C
(781; 20M)	6	2.0	84.	33.5	1.3	C
(781; 30M)	5	1.9	71.	20.7	1.2	C
(783; 24M)	6	1.3	84.	25.3	0.9	C
(783; 34M)	6	1.0	84.	30.9	0.5	C
(783; 64M)	6	1.7	94.	34.7	1.0	C
(782; 20M)	5	1.8	89.	32.8	1.3	C
(782; 30M)	6	1.6	77.	22.6	1.0	C
(LF70;346M)	3	0.2	176.	322.8	0.0	A
(LF70;589M)	3	0.3	149.	339.8	0.1	C
(KL11;611M)	4	0.3	138.	2.9	0.1	C
(KL11;950M)	4	0.3	141.	24.3	0.0	A
(784; 400M)	6	0.4	109.	125.9	0.2	C

CONSTITUENT N2

U		V		
AMPLITUDE (M/S)*100	PHASE (DEG)	AMPLITUDE (M/S)*100	PHASE (DEG)	STATION
0.7(+/-0.6)	11.6(+/- 55.2)	0.3(+/-0.5)	168.6(+/- 87.8)	(795; 200M)
0.9(+/-0.4)	7.0(+/- 55.4)	0.9(+/-0.7)	151.6(+/- 49.9)	(793; 80M)
0.6(+/-0.4)	53.8(+/- 64.4)	0.7(+/-0.5)	129.6(+/- 44.4)	(685; 198M)
0.4(+/-0.3)	51.8(+/- 66.3)	0.7(+/-0.4)	151.5(+/- 35.8)	(789; 200M)
0.8(+/-0.4)	47.9(+/- 41.6)	0.4(+/-0.5)	261.0(+/- 81.9)	(686; 200M)
0.8(+/-0.3)	19.1(+/- 33.7)	0.7(+/-0.3)	231.9(+/- 36.7)	(686; 400M)
0.6(+/-0.4)	41.5(+/- 45.3)	0.3(+/-0.4)	224.9(+/- 82.3)	(686; 985M)
0.7(+/-0.4)	21.7(+/- 28.8)	0.7(+/-0.3)	215.4(+/- 40.2)	(687; 200M)
0.5(+/-0.2)	36.2(+/- 18.4)	0.5(+/-0.3)	217.5(+/- 32.0)	(687; 400M)
0.5(+/-0.3)	29.1(+/- 38.3)	0.6(+/-0.3)	192.8(+/- 28.5)	(687;1000M)
0.3(+/-0.3)	12.9(+/- 68.7)	0.4(+/-0.2)	186.3(+/- 30.1)	(687;2485M)
1.0(+/-0.7)	35.4(+/- 72.1)	0.4(+/-0.6)	266.1(+/- 79.7)	(WJ49; 14M)
1.2(+/-0.4)	63.8(+/- 11.9)	0.8(+/-0.4)	341.4(+/- 41.0)	(WJ49; 57M)
1.8(+/-0.2)	56.5(+/- 9.6)	1.4(+/-0.4)	326.2(+/- 11.5)	(WJ49; 97M)
0.4(+/-0.4)	330.2(+/- 75.9)	0.8(+/-0.4)	185.5(+/- 20.7)	(794; 147M)
0.8(+/-0.4)	5.1(+/- 32.7)	0.7(+/-0.3)	224.1(+/- 44.3)	(792; 200M)
0.7(+/-0.3)	34.2(+/- 31.5)	0.5(+/-0.4)	239.6(+/- 49.9)	(787; 211M)
0.7(+/-0.2)	22.0(+/- 20.5)	0.5(+/-0.2)	224.1(+/- 44.4)	(787; 411M)
0.6(+/-0.4)	11.4(+/- 69.3)	0.6(+/-0.3)	202.6(+/- 34.2)	(787; 996M)
0.7(+/-0.3)	34.3(+/- 28.1)	0.6(+/-0.2)	218.5(+/- 22.8)	(788; 183M)
0.7(+/-0.3)	35.6(+/- 18.8)	0.4(+/-0.3)	223.3(+/- 43.1)	(788; 383M)
0.4(+/-0.2)	29.3(+/- 27.9)	0.5(+/-0.2)	204.3(+/- 25.3)	(788; 983M)
0.7(+/-0.3)	6.7(+/- 38.5)	0.7(+/-0.5)	202.6(+/- 49.0)	(788;2468M)
0.3(+/-0.3)	31.2(+/- 75.4)	0.1(+/-0.2)	235.6(+/- 74.0)	(796; 360M)
0.5(+/-0.2)	32.3(+/- 16.3)	0.4(+/-0.1)	28.5(+/- 31.3)	(780; 181M)
1.9(+/-0.6)	37.8(+/- 10.0)	1.3(+/-0.7)	313.4(+/- 15.0)	(781; 20M)
1.8(+/-0.4)	33.4(+/- 16.5)	1.3(+/-0.5)	318.2(+/- 26.3)	(781; 30M)
1.3(+/-0.4)	29.2(+/- 33.4)	0.9(+/-0.5)	304.5(+/- 48.4)	(783; 24M)
1.0(+/-0.3)	33.6(+/- 19.5)	0.5(+/-0.4)	312.1(+/- 63.8)	(783; 34M)
1.7(+/-0.5)	32.6(+/- 8.5)	1.0(+/-0.5)	298.0(+/- 62.3)	(783; 64M)
1.8(+/-0.5)	33.8(+/- 9.4)	1.3(+/-0.3)	304.5(+/- 19.7)	(782; 20M)
1.6(+/-0.6)	30.9(+/- 30.0)	1.1(+/-0.5)	311.4(+/- 40.7)	(782; 30M)
0.0(+/-0.2)	25.0(+/-107.1)	0.2(+/-0.2)	142.1(+/- 86.1)	(LF70;346M)
0.2(+/-0.1)	319.1(+/- 44.4)	0.3(+/-0.2)	167.7(+/- 40.4)	(LF70;589M)
0.2(+/-0.2)	342.1(+/- 30.7)	0.2(+/-0.2)	200.6(+/- 24.7)	(KL11;611M)
0.2(+/-0.2)	29.9(+/- 56.7)	0.2(+/-0.2)	200.6(+/- 82.7)	(KL11;950M)
0.4(+/-0.3)	116.0(+/- 66.1)	0.2(+/-0.2)	1.9(+/- 71.3)	(784; 400M)

CONSTITUENT K1

		ELLIPSE				
		MAJOR AXIS			MINOR AXIS	
STATION	# BLOCKS	AMPLITUDE (M/S)*100	ORIENTATION (DEG TRUE)	PHASE (DEG)	AMPLITUDE (M/S)*100	SENSE OF ROTATION
(795; 200M)	12	1.3	108.	66.3	0.7	C
(793; 80M)	11	0.7	101.	70.8	0.4	C
(685; 198M)	14	0.3	99.	81.9	0.2	C
(789; 200M)	12	0.4	133.	103.4	0.1	A
(686; 200M)	14	0.4	126.	327.0	0.0	C
(686; 400M)	14	0.5	161.	310.7	0.0	A
(686; 985M)	14	0.4	153.	357.2	0.0	C
(687; 200M)	14	0.3	154.	340.2	0.1	C
(687; 400M)	14	0.3	154.	320.9	0.0	A
(687;1000M)	14	0.3	157.	352.3	0.1	A
(687;2485M)	7	0.3	102.	313.8	0.2	A
(WJ49; 14M)	3	2.5	51.	336.5	2.0	C
(WJ49; 57M)	3	3.7	73.	1.6	2.6	C
(WJ49; 97M)	3	3.5	69.	9.9	2.6	C
(794; 147M)	12	0.7	166.	155.5	0.5	C
(792; 200M)	12	0.3	54.	96.0	0.2	C
(787; 211M)	12	0.6	146.	336.4	0.2	A
(787; 411M)	6	0.5	163.	304.5	0.3	A
(787; 996M)	7	0.2	155.	4.3	0.2	A
(788; 183M)	12	0.3	14.	159.2	0.0	C
(788; 383M)	6	0.3	156.	346.0	0.1	A
(788; 983M)	10	0.4	164.	321.0	0.0	C
(788;2468M)	12	0.4	134.	348.8	0.1	C
(796; 360M)	6	0.3	153.	326.9	0.1	A
(780; 181M)	6	0.4	67.	343.8	0.1	C
(781; 20M)	6	3.2	76.	340.1	2.8	C
(781; 30M)	5	3.8	89.	359.0	3.2	C
(783; 24M)	6	3.5	77.	344.7	2.8	C
(783; 34M)	6	3.5	66.	337.0	3.0	C
(783; 64M)	6	4.6	75.	350.2	3.7	C
(782; 20M)	5	3.0	81.	357.1	2.4	C
(782; 30M)	6	3.6	70.	350.0	2.9	C
(LF70;346M)	3	0.7	30.	30.2	0.2	C
(LF70;589M)	3	0.8	34.	25.1	0.0	C
(KL11;611M)	4	0.9	18.	76.0	0.1	C
(KL11;950M)	4	1.0	5.	88.9	0.1	A
(784; 400M)	6	1.7	10.	145.6	0.7	A

CONSTITUENT K1

U		V		
AMPLITUDE (M/S)•100	PHASE (DEG)	AMPLITUDE (M/S)•100	PHASE (DEG)	STATION
1.2(+/-0.5)	56.2(+/- 26.0)	0.8(+/-0.3)	305.3(+/- 21.6)	(795; 200M)
0.7(+/-0.6)	64.0(+/- 46.5)	0.4(+/-0.6)	322.6(+/- 84.2)	(793; 80M)
0.3(+/-0.4)	76.4(+/- 66.5)	0.2(+/-0.4)	338.7(+/- 63.9)	(685; 198M)
0.3(+/-0.3)	110.6(+/- 74.9)	0.3(+/-0.3)	275.1(+/- 69.9)	(789; 200M)
0.3(+/-0.5)	325.4(+/- 70.6)	0.2(+/-0.6)	150.0(+/- 93.7)	(686; 200M)
0.2(+/-0.4)	325.4(+/- 80.4)	0.5(+/-0.4)	128.8(+/- 61.5)	(686; 400M)
0.2(+/-0.6)	350.3(+/- 79.3)	0.4(+/-0.6)	179.0(+/- 62.0)	(686; 985M)
0.2(+/-0.3)	308.8(+/- 74.6)	0.3(+/-0.5)	168.4(+/- 58.3)	(687; 200M)
0.1(+/-0.2)	321.6(+/- 82.4)	0.2(+/-0.3)	140.7(+/- 50.0)	(687; 400M)
0.1(+/-0.5)	21.1(+/- 80.5)	0.3(+/-0.4)	166.4(+/- 67.5)	(687;1000M)
0.3(+/-0.5)	321.1(+/- 88.9)	0.2(+/-0.3)	63.9(+/- 62.3)	(687;2485M)
2.3(+/-0.9)	9.7(+/- 16.4)	2.2(+/-0.7)	292.4(+/- 19.8)	(WJ49; 14M)
3.6(+/-1.1)	13.8(+/- 3.6)	2.7(+/-0.9)	294.7(+/- 3.1)	(WJ49; 57M)
3.4(+/-1.0)	26.3(+/- 4.7)	2.7(+/-0.9)	307.2(+/- 5.9)	(WJ49; 97M)
0.5(+/-0.3)	84.8(+/- 46.1)	0.7(+/-0.2)	345.3(+/- 27.7)	(794; 147M)
0.3(+/-0.4)	126.4(+/- 72.7)	0.3(+/-0.3)	47.9(+/- 63.3)	(792; 200M)
0.4(+/-0.4)	358.0(+/- 58.5)	0.5(+/-0.4)	146.1(+/- 46.3)	(787; 211M)
0.3(+/-0.2)	4.6(+/- 66.2)	0.5(+/-0.2)	115.7(+/- 43.6)	(787; 411M)
0.2(+/-0.4)	63.3(+/- 77.8)	0.2(+/-0.4)	163.6(+/- 99.7)	(787; 996M)
0.1(+/-0.5)	194.2(+/- 97.4)	0.3(+/-0.3)	156.7(+/- 68.0)	(788; 183M)
0.2(+/-0.2)	15.7(+/- 69.9)	0.3(+/-0.1)	159.5(+/- 24.4)	(788; 383M)
0.1(+/-0.3)	311.6(+/- 78.7)	0.4(+/-0.1)	141.9(+/- 21.8)	(788; 983M)
0.3(+/-0.5)	332.3(+/- 61.7)	0.3(+/-0.4)	185.8(+/- 79.0)	(788;2468M)
0.1(+/-0.3)	346.2(+/- 65.6)	0.3(+/-0.2)	141.6(+/- 35.0)	(796; 360M)
0.4(+/-0.1)	346.7(+/- 10.1)	0.2(+/-0.2)	328.1(+/- 42.1)	(780; 181M)
3.2(+/-0.7)	351.8(+/- 6.8)	2.8(+/-1.1)	265.8(+/- 4.5)	(781; 20M)
3.8(+/-0.5)	.1(+/- 7.3)	3.2(+/-0.5)	270.6(+/- 4.1)	(781; 30M)
3.4(+/-0.7)	355.1(+/- 6.5)	2.8(+/-0.6)	270.4(+/- 4.0)	(783; 24M)
3.4(+/-0.6)	358.4(+/- 5.2)	3.1(+/-0.5)	274.6(+/- 2.4)	(783; 34M)
4.5(+/-0.9)	2.1(+/- 5.4)	3.7(+/-0.7)	278.3(+/- 3.0)	(783; 64M)
3.0(+/-0.3)	4.5(+/- 11.3)	2.4(+/-0.4)	278.6(+/- 10.1)	(782; 20M)
3.5(+/-0.7)	6.3(+/- 6.1)	3.0(+/-0.5)	285.2(+/- 5.2)	(782; 30M)
0.4(+/-0.1)	50.3(+/- 28.4)	0.6(+/-0.2)	23.4(+/- 23.6)	(LF70;346M)
0.4(+/-0.0)	25.8(+/- 23.3)	0.7(+/-0.1)	24.8(+/- 22.0)	(LF70;589M)
0.3(+/-0.1)	92.6(+/- 57.1)	0.9(+/-0.2)	74.2(+/- 8.1)	(KL11;611M)
0.2(+/-0.1)	34.7(+/- 51.7)	1.0(+/-0.3)	89.5(+/- 18.9)	(KL11;950M)
0.8(+/-0.3)	78.7(+/- 42.6)	1.7(+/-0.7)	150.1(+/- 15.7)	(784; 400M)

CONSTITUENT O1

		ELLIPSE				
		MAJOR AXIS				
STATION	# BLOCKS	AMPLITUDE (M/S)*100	ORIENTATION (DEG TRUE)	PHASE (DEG)	MINOR AXIS AMPLITUDE (M/S)*100	SENSE OF ROTATION
(795; 200M)	12	1.1	94.	336.6	0.6	C
(793; 80M)	11	0.8	109.	327.4	0.3	C
(685; 198M)	14	0.5	109.	349.7	0.1	C
(789; 200M)	12	0.4	112.	18.6	0.1	C
(686; 200M)	14	0.6	135.	295.1	0.0	C
(686; 400M)	14	0.2	103.	289.4	0.0	A
(686; 985M)	14	0.4	133.	279.5	0.0	C
(687; 200M)	14	0.3	116.	229.7	0.1	C
(687; 400M)	14	0.3	105.	213.2	0.1	C
(687;1000M)	14	0.1	68.	156.3	0.1	C
(687;2485M)	7	0.5	121.	224.0	0.2	C
(WJ49; 14M)	3	2.6	142.	326.2	2.3	C
(WJ49; 57M)	3	3.4	93.	281.8	2.6	C
(WJ49; 97M)	3	3.4	76.	276.6	2.6	C
(794; 147M)	12	0.6	77.	306.7	0.5	C
(792; 200M)	12	0.4	102.	290.4	0.3	C
(787; 211M)	12	0.3	134.	254.8	0.2	A
(787; 411M)	6	0.4	13.	12.4	0.1	A
(787; 996M)	7	0.4	150.	298.8	0.1	C
(788; 183M)	12	0.2	160.	266.6	0.1	C
(788; 383M)	6	0.3	134.	212.1	0.1	C
(788; 983M)	10	0.3	126.	238.9	0.1	C
(788;2468M)	12	0.3	177.	198.3	0.2	A
(796; 360M)	6	0.2	150.	7.2	0.2	C
(780; 181M)	6	0.7	1.	303.5	0.1	A
(781; 20M)	6	2.6	76.	255.4	2.3	C
(781; 30M)	5	2.9	72.	254.9	2.3	C
(783; 24M)	6	2.7	67.	247.6	2.3	C
(783; 34M)	6	2.6	75.	255.2	2.2	C
(783; 64M)	6	3.4	84.	270.0	2.9	C
(782; 20M)	5	2.7	61.	261.1	2.3	C
(782; 30M)	6	2.7	58.	247.3	2.4	C
(LF70;346M)	3	0.7	42.	321.8	0.0	C
(LF70;589M)	3	0.7	37.	323.7	0.2	C
(KL11;611M)	4	1.0	21.	3.4	0.3	A
(KL11;950M)	4	1.1	3.	21.5	0.3	A
(784; 400M)	6	2.2	8.	49.7	0.5	A

CONSTITUENT O1

U		V		
AMPLITUDE (M/S)*100	PHASE (DEG)	AMPLITUDE (M/S)*100	PHASE (DEG)	STATION
1.1(+/-0.3)	334.6(+/- 19.0)	0.6(+/-0.3)	239.7(+/- 37.6)	(795; 200M)
0.7(+/-0.6)	319.5(+/- 46.0)	0.4(+/-0.5)	196.1(+/- 66.7)	(793; 80M)
0.5(+/-0.4)	346.0(+/- 48.7)	0.2(+/-0.4)	199.4(+/- 85.9)	(685; 198M)
0.4(+/-0.4)	10.5(+/- 62.3)	0.2(+/-0.4)	238.3(+/- 92.5)	(789; 200M)
0.4(+/-0.5)	291.1(+/- 66.5)	0.4(+/-0.4)	119.0(+/- 51.8)	(686; 200M)
0.2(+/-0.5)	290.3(+/- 78.9)	0.0(+/-0.3)	94.4(+/-107.6)	(686; 400M)
0.3(+/-0.6)	275.6(+/- 73.9)	0.3(+/-0.4)	104.1(+/- 61.5)	(686; 985M)
0.3(+/-0.4)	221.8(+/- 61.7)	0.2(+/-0.3)	79.8(+/- 73.5)	(687; 200M)
0.3(+/-0.3)	207.9(+/- 69.1)	0.1(+/-0.3)	86.8(+/- 85.1)	(687; 400M)
0.1(+/-0.4)	175.6(+/- 94.4)	0.1(+/-0.2)	91.5(+/- 83.5)	(687;1000M)
0.4(+/-0.3)	210.6(+/- 58.9)	0.3(+/-0.2)	78.3(+/- 70.5)	(687;2485M)
2.4(+/-0.6)	277.5(+/- 6.1)	2.5(+/-0.3)	180.9(+/- 10.7)	(WJ49; 14M)
3.4(+/-0.3)	279.6(+/- 2.4)	2.6(+/-0.5)	188.0(+/- 7.9)	(WJ49; 57M)
3.4(+/-0.5)	287.4(+/- 2.7)	2.7(+/-0.4)	204.2(+/- 8.2)	(WJ49; 97M)
0.6(+/-0.4)	317.7(+/- 29.4)	0.5(+/-0.4)	232.9(+/- 38.7)	(794; 147M)
0.4(+/-0.4)	281.9(+/- 65.5)	0.3(+/-0.2)	184.0(+/- 64.3)	(792; 200M)
0.2(+/-0.6)	281.8(+/-101.1)	0.2(+/-0.5)	45.8(+/- 90.6)	(787; 211M)
0.2(+/-0.3)	319.0(+/- 89.9)	0.4(+/-0.4)	16.8(+/- 60.8)	(787; 411M)
0.2(+/-0.4)	277.5(+/- 80.2)	0.4(+/-0.4)	126.4(+/- 61.4)	(787; 996M)
0.1(+/-0.5)	222.6(+/- 84.0)	0.2(+/-0.3)	94.2(+/- 84.5)	(788; 183M)
0.2(+/-0.2)	195.5(+/- 45.0)	0.2(+/-0.1)	50.4(+/- 38.1)	(788; 383M)
0.2(+/-0.1)	225.6(+/- 39.3)	0.2(+/-0.1)	83.4(+/- 63.6)	(788; 983M)
0.2(+/-0.6)	283.1(+/- 84.9)	0.3(+/-0.3)	16.2(+/- 55.2)	(788;2468M)
0.2(+/-0.2)	320.8(+/- 44.5)	0.2(+/-0.1)	206.9(+/- 41.2)	(796; 360M)
0.1(+/-0.2)	220.6(+/- 72.1)	0.7(+/-0.3)	303.8(+/- 4.9)	(780; 181M)
2.6(+/-0.5)	267.5(+/- 10.9)	2.3(+/-0.3)	181.4(+/- 11.2)	(781; 20M)
2.8(+/-0.2)	269.3(+/- 7.6)	2.4(+/-0.2)	186.6(+/- 4.2)	(781; 30M)
2.7(+/-0.5)	266.8(+/- 10.1)	2.4(+/-0.4)	184.2(+/- 11.1)	(783; 24M)
2.6(+/-0.4)	267.9(+/- 8.0)	2.2(+/-0.4)	182.6(+/- 10.1)	(783; 34M)
3.4(+/-0.8)	275.2(+/- 6.0)	2.9(+/-0.7)	187.0(+/- 11.2)	(783; 64M)
2.6(+/-0.2)	286.6(+/- 11.2)	2.4(+/-0.4)	203.5(+/- 11.3)	(782; 20M)
2.6(+/-0.4)	275.8(+/- 13.0)	2.5(+/-0.6)	192.3(+/- 7.5)	(782; 30M)
0.4(+/-0.2)	322.6(+/- 32.3)	0.5(+/-0.1)	321.2(+/- 32.6)	(LF70;346M)
0.4(+/-0.3)	340.6(+/- 23.8)	0.5(+/-0.2)	313.6(+/- 24.5)	(LF70;589M)
0.5(+/-0.2)	323.9(+/- 16.0)	0.9(+/-0.1)	10.6(+/- 6.9)	(KL11;611M)
0.3(+/-0.2)	301.2(+/- 19.8)	1.1(+/-0.1)	22.1(+/- 13.2)	(KL11;950M)
0.6(+/-0.4)	351.8(+/- 74.4)	2.2(+/-0.3)	51.7(+/- 10.9)	(784; 400M)

CONSTITUENT M4

		ELLIPSE				
		MAJOR AXIS			MINOR AXIS	
STATION	# BLOCKS	AMPLITUDE (M/S)•100	ORIENTATION (DEG TRUE)	PHASE (DEG)	AMPLITUDE (M/S)•100	SENSE OF ROTATION
(795; 200M)	12	0.2	157.	167.9	0.1	C
(793; 80M)	11	0.1	22.	188.2	0.0	A
(685; 198M)	14	0.2	139.	207.0	0.1	C
(789; 200M)	12	0.1	152.	212.9	0.0	C
(686; 200M)	14	0.2	45.	130.6	0.0	A
(686; 400M)	14	0.1	110.	76.2	0.0	C
(686; 985M)	14	0.1	98.	84.3	0.0	C
(687; 200M)	14	0.1	179.	169.0	0.0	C
(687; 400M)	14	0.1	6.	344.1	0.0	C
(687;1000M)	14	0.1	37.	83.0	0.0	A
(687;2485M)	7	0.1	9.	170.8	0.0	A
(WJ49; 14M)	3	0.3	129.	346.9	0.1	A
(WJ49; 57M)	3	0.3	97.	282.4	0.1	C
(WJ49; 97M)	3	0.2	47.	287.2	0.1	C
(794; 147M)	12	0.1	35.	313.6	0.0	C
(792; 200M)	12	0.1	27.	77.9	0.0	A
(787; 211M)	12	0.1	27.	208.6	0.0	C
(787; 411M)	6	0.1	86.	77.8	0.0	A
(787; 996M)	7	0.1	113.	88.4	0.0	A
(788; 183M)	12	0.1	27.	25.5	0.0	C
(788; 383M)	6	0.1	96.	215.7	0.0	C
(788; 983M)	10	0.1	38.	109.6	0.0	C
(788;2468M)	12	0.1	161.	25.7	0.0	A
(796; 360M)	6	0.1	55.	37.9	0.0	C
(780; 181M)	6	0.1	114.	314.4	0.0	C
(781; 20M)	6	0.3	62.	273.3	0.2	C
(781; 30M)	5	0.2	119.	278.7	0.1	C
(783; 24M)	6	0.2	57.	249.5	0.1	C
(783; 34M)	6	0.3	71.	253.2	0.2	C
(783; 64M)	6	0.3	15.	254.8	0.1	C
(782; 20M)	5	0.1	127.	325.6	0.0	C
(782; 30M)	6	0.3	149.	287.6	0.1	C
(LF70;346M)	3	0.1	59.	278.5	0.0	A
(LF70;589M)	3	0.1	47.	220.8	0.0	C
(KL11;611M)	4	0.1	39.	110.8	0.0	C
(KL11;950M)	4	0.2	17.	178.0	0.0	C
(784; 400M)	6	0.1	32.	134.8	0.1	C

CONSTITUENT M4

U		V		
AMPLITUDE (M/S)•100	PHASE (DEG)	AMPLITUDE (M/S)•100	PHASE (DEG)	STATION
0.1(+/-0.1)	116.3(+/- 70.3)	0.2(+/-0.1)	.5(+/- 47.1)	(795; 200M)
0.0(+/-0.3)	149.6(+/- 92.7)	0.1(+/-0.2)	195.6(+/- 88.2)	(793; 80M)
0.1(+/-0.1)	183.0(+/- 63.6)	0.1(+/-0.2)	45.5(+/- 76.3)	(685; 198M)
0.1(+/-0.2)	194.7(+/- 95.2)	0.1(+/-0.2)	38.0(+/- 74.3)	(789; 200M)
0.1(+/-0.3)	118.6(+/- 81.7)	0.1(+/-0.2)	142.9(+/- 84.4)	(686; 200M)
0.1(+/-0.2)	73.3(+/- 78.2)	0.0(+/-0.2)	277.5(+/-112.9)	(686; 400M)
0.1(+/-0.1)	82.9(+/- 58.7)	0.0(+/-0.2)	313.1(+/- 93.5)	(686; 985M)
0.0(+/-0.2)	83.6(+/-105.3)	0.1(+/-0.1)	349.5(+/- 63.8)	(687; 200M)
0.0(+/-0.1)	350.7(+/-103.6)	0.1(+/-0.1)	344.1(+/- 71.8)	(687; 400M)
0.1(+/-0.4)	60.9(+/- 98.7)	0.1(+/-0.2)	96.4(+/- 77.1)	(687;1000M)
0.0(+/-0.2)	136.9(+/-101.5)	0.1(+/-0.1)	171.8(+/- 60.7)	(687;2485M)
0.2(+/-0.1)	359.1(+/- 14.9)	0.2(+/-0.2)	149.0(+/- 75.7)	(WJ49; 14M)
0.3(+/-0.1)	279.9(+/- 15.3)	0.1(+/-0.1)	174.4(+/- 72.1)	(WJ49; 57M)
0.1(+/-0.0)	304.4(+/- 41.3)	0.1(+/-0.1)	267.5(+/- 42.9)	(WJ49; 97M)
0.0(+/-0.1)	349.2(+/- 90.2)	0.1(+/-0.2)	294.9(+/- 94.6)	(794; 147M)
0.0(+/-0.1)	48.8(+/- 81.7)	0.1(+/-0.2)	86.2(+/-100.3)	(792; 200M)
0.1(+/-0.1)	235.4(+/- 87.0)	0.1(+/-0.2)	201.3(+/- 86.9)	(787; 211M)
0.1(+/-0.1)	77.3(+/- 51.8)	0.0(+/-0.2)	136.9(+/-110.2)	(787; 411M)
0.1(+/-0.1)	92.9(+/- 72.8)	0.1(+/-0.1)	244.7(+/- 92.9)	(787; 996M)
0.0(+/-0.2)	40.0(+/-117.3)	0.1(+/-0.1)	21.6(+/- 59.9)	(788; 183M)
0.1(+/-0.1)	215.6(+/- 62.3)	0.0(+/-0.2)	42.1(+/-101.0)	(788; 383M)
0.0(+/-0.1)	152.0(+/- 79.2)	0.0(+/-0.1)	80.2(+/- 71.8)	(788; 983M)
0.0(+/-0.2)	48.4(+/-111.1)	0.1(+/-0.1)	202.9(+/- 83.8)	(788;2468M)
0.1(+/-0.1)	45.0(+/- 62.2)	0.1(+/-0.1)	24.1(+/- 66.4)	(796; 360M)
0.1(+/-0.1)	309.1(+/- 48.1)	0.1(+/-0.1)	160.5(+/- 79.3)	(780; 181M)
0.3(+/-0.1)	289.0(+/- 23.4)	0.2(+/-0.2)	227.6(+/- 39.9)	(781; 20M)
0.2(+/-0.2)	263.0(+/- 43.7)	0.1(+/-0.1)	142.3(+/- 48.6)	(781; 30M)
0.2(+/-0.2)	268.0(+/- 72.0)	0.1(+/-0.2)	210.2(+/- 65.7)	(783; 24M)
0.3(+/-0.1)	264.3(+/- 37.8)	0.2(+/-0.2)	194.5(+/- 54.7)	(783; 34M)
0.2(+/-0.2)	315.5(+/-101.0)	0.3(+/-0.2)	247.6(+/- 47.4)	(783; 64M)
0.1(+/-0.1)	310.3(+/- 79.7)	0.1(+/-0.1)	170.8(+/- 72.3)	(782; 20M)
0.2(+/-0.2)	252.7(+/- 72.4)	0.3(+/-0.3)	121.9(+/- 52.6)	(782; 30M)
0.1(+/-0.1)	273.1(+/- 14.7)	0.1(+/-0.0)	292.9(+/- 32.1)	(LF70;346M)
0.1(+/-0.0)	228.4(+/- 41.2)	0.1(+/-0.1)	212.2(+/- 64.9)	(LF70;589M)
0.0(+/-0.0)	115.2(+/- 67.3)	0.1(+/-0.0)	108.0(+/- 58.6)	(KL11;611M)
0.1(+/-0.1)	206.2(+/- 57.2)	0.2(+/-0.1)	175.0(+/- 22.1)	(KL11;950M)
0.1(+/-0.1)	171.8(+/- 47.1)	0.1(+/-0.1)	118.4(+/- 77.5)	(784; 400M)

CONSTITUENT MS4

		ELLIPSE				
		MAJOR AXIS			MINOR AXIS	
STATION	# BLOCKS	AMPLITUDE (M/S)•100	ORIENTATION (DEG TRUE)	PHASE (DEG)	AMPLITUDE (M/S)•100	SENSE OF ROTATION
(795; 200M)	12	0.1	14.	31.1	0.0	A
(793; 80M)	11	0.2	55.	113.8	0.1	A
(685; 198M)	14	0.2	162.	338.6	0.1	C
(789; 200M)	12	0.2	143.	331.6	0.0	A
(686; 200M)	14	0.1	177.	40.4	0.1	C
(686; 400M)	14	0.0	151.	113.1	0.0	A
(686; 985M)	14	0.1	180.	254.7	0.1	C
(687; 200M)	14	0.0	142.	224.8	0.0	A
(687; 400M)	14	0.1	167.	215.3	0.0	C
(687;1000M)	14	0.1	150.	282.4	0.0	C
(687;2485M)	7	0.1	177.	127.3	0.0	A
(WJ49; 14M)	3	0.2	162.	62.3	0.0	A
(WJ49; 57M)	3	0.2	72.	43.1	0.0	C
(WJ49; 97M)	3	0.2	96.	75.2	0.0	C
(794; 147M)	12	0.1	31.	177.8	0.0	C
(792; 200M)	12	0.1	172.	80.7	0.0	C
(787; 211M)	12	0.0	56.	304.1	0.0	C
(787; 411M)	6	0.1	40.	25.3	0.0	C
(787; 996M)	7	0.1	5.	121.4	0.0	A
(788; 183M)	12	0.1	76.	214.1	0.0	C
(788; 383M)	6	0.1	53.	276.4	0.0	A
(788; 983M)	10	0.1	153.	239.0	0.0	C
(788;2468M)	12	0.1	164.	35.7	0.0	C
(796; 360M)	6	0.1	158.	211.0	0.0	C
(780; 181M)	6	0.0	86.	34.3	0.0	C
(781; 20M)	6	0.2	77.	46.0	0.1	C
(781; 30M)	5	0.2	59.	51.6	0.0	C
(783; 24M)	6	0.2	13.	113.5	0.0	A
(783; 34M)	6	0.2	42.	156.3	0.0	A
(783; 64M)	6	0.2	173.	141.8	0.1	C
(782; 20M)	5	0.2	90.	63.4	0.1	C
(782; 30M)	6	0.1	138.	322.6	0.0	A
(LF70;346M)	3	0.1	0.	294.0	0.1	A
(LF70;589M)	3	0.1	130.	71.2	0.0	C
(KL11;611M)	4	0.1	145.	286.5	0.0	C
(KL11;950M)	4	0.1	174.	75.2	0.0	C
(784; 400M)	6	0.1	29.	102.2	0.1	C

CONSTITUENT MS4

U		V		
AMPLITUDE (M/S)*100	PHASE (DEG)	AMPLITUDE (M/S)*100	PHASE (DEG)	STATION
0.1(+/-0.2)	332.6(+/- 88.8)	0.1(+/-0.1)	36.8(+/- 55.1)	(795; 200M)
0.2(+/-0.2)	101.7(+/- 61.4)	0.1(+/-0.2)	136.6(+/- 96.0)	(793; 80M)
0.1(+/-0.1)	290.7(+/- 64.9)	0.2(+/-0.1)	165.5(+/- 54.2)	(685; 198M)
0.1(+/-0.1)	343.8(+/- 73.6)	0.2(+/-0.2)	144.8(+/- 66.0)	(789; 200M)
0.1(+/-0.2)	316.0(+/- 92.3)	0.1(+/-0.3)	222.0(+/- 98.0)	(686; 200M)
0.0(+/-0.1)	158.9(+/- 88.1)	0.0(+/-0.2)	275.2(+/-113.6)	(686; 400M)
0.1(+/-0.1)	164.7(+/- 83.4)	0.1(+/-0.1)	74.7(+/- 86.4)	(686; 985M)
0.0(+/-0.1)	245.3(+/-108.3)	0.0(+/-0.1)	32.3(+/- 94.1)	(687; 200M)
0.0(+/-0.1)	158.9(+/- 94.5)	0.1(+/-0.1)	40.0(+/- 83.0)	(687; 400M)
0.1(+/-0.5)	260.5(+/- 90.8)	0.1(+/-0.3)	110.3(+/- 87.5)	(687;1000M)
0.0(+/-0.2)	199.8(+/- 83.9)	0.1(+/-0.1)	306.8(+/- 83.7)	(687;2485M)
0.1(+/-0.2)	94.9(+/-114.4)	0.2(+/-0.1)	238.4(+/- 35.7)	(WJ49; 14M)
0.1(+/-0.1)	48.6(+/- 54.7)	0.1(+/-0.1)	1.0(+/-101.4)	(WJ49; 57M)
0.2(+/-0.2)	74.3(+/- 6.0)	0.0(+/-0.1)	310.9(+/-111.1)	(WJ49; 97M)
0.1(+/-0.2)	222.0(+/- 92.3)	0.1(+/-0.2)	159.0(+/- 82.0)	(794; 147M)
0.0(+/-0.1)	6.9(+/- 96.5)	0.1(+/-0.1)	264.4(+/- 79.0)	(792; 200M)
0.0(+/-0.2)	316.3(+/-102.3)	0.0(+/-0.2)	279.0(+/- 91.4)	(787; 211M)
0.1(+/-0.2)	38.5(+/- 86.4)	0.1(+/-0.1)	15.8(+/- 84.6)	(787; 411M)
0.0(+/-0.1)	65.3(+/-105.1)	0.1(+/-0.1)	122.0(+/- 62.0)	(787; 996M)
0.1(+/-0.1)	217.4(+/- 85.1)	0.0(+/-0.1)	170.3(+/- 96.6)	(788; 183M)
0.1(+/-0.1)	267.6(+/- 78.7)	0.0(+/-0.1)	292.1(+/- 94.6)	(788; 383M)
0.0(+/-0.1)	203.1(+/- 64.3)	0.1(+/-0.1)	69.6(+/- 55.2)	(788; 983M)
0.0(+/-0.2)	330.7(+/- 85.7)	0.1(+/-0.1)	226.3(+/- 76.4)	(788;2468M)
0.0(+/-0.1)	152.4(+/- 63.0)	0.1(+/-0.0)	45.9(+/- 40.8)	(796; 360M)
0.0(+/-0.1)	36.4(+/- 84.9)	0.0(+/-0.1)	312.9(+/- 88.7)	(780; 181M)
0.2(+/-0.2)	50.3(+/- 77.9)	0.1(+/-0.2)	352.6(+/- 90.0)	(781; 20M)
0.2(+/-0.1)	52.0(+/- 55.3)	0.1(+/-0.2)	50.5(+/- 99.4)	(781; 30M)
0.0(+/-0.2)	75.3(+/- 89.9)	0.2(+/-0.1)	115.7(+/- 34.8)	(783; 24M)
0.1(+/-0.1)	141.6(+/- 70.5)	0.1(+/-0.1)	168.7(+/- 74.5)	(783; 34M)
0.1(+/-0.3)	68.0(+/- 89.8)	0.2(+/-0.3)	324.7(+/- 67.6)	(783; 64M)
0.2(+/-0.1)	63.5(+/- 11.6)	0.1(+/-0.2)	333.7(+/- 74.9)	(782; 20M)
0.0(+/-0.4)	325.3(+/-103.1)	0.0(+/-0.3)	140.4(+/-111.2)	(782; 30M)
0.1(+/-0.1)	204.5(+/- 98.4)	0.1(+/-0.1)	294.2(+/- 39.9)	(LF70;346M)
0.1(+/-0.1)	53.9(+/- 57.7)	0.1(+/-0.1)	274.4(+/- 68.3)	(LF70;589M)
0.0(+/-0.0)	250.7(+/- 49.4)	0.1(+/-0.1)	125.9(+/- 72.6)	(KL11;611M)
0.0(+/-0.0)	10.5(+/- 57.2)	0.1(+/-0.1)	256.6(+/- 37.5)	(KL11;950M)
0.1(+/-0.1)	150.3(+/- 65.0)	0.1(+/-0.1)	83.8(+/- 93.6)	(784; 400M)

CONSTITUENT MF

		ELLIPSE				
		MAJOR AXIS			MINOR AXIS	
STATION	# BLOCKS	AMPLITUDE (M/S)•100	ORIENTATION (DEG TRUE)	PHASE (DEG)	AMPLITUDE (M/S)•100	SENSE OF ROTATION
(795; 200M)	12	0.9	91.	14.4	0.2	A
(793; 80M)	11	0.5	77.	242.9	0.0	A
(685; 198M)	14	0.4	114.	357.5	0.1	C
(789; 200M)	12	0.9	145.	292.2	0.1	A
(686; 200M)	14	0.9	152.	101.5	0.2	A
(686; 400M)	14	0.4	144.	75.1	0.0	A
(686; 985M)	14	0.2	149.	39.3	0.0	C
(687; 200M)	14	0.9	39.	63.3	0.1	C
(687; 400M)	14	0.9	29.	62.7	0.1	C
(687;1000M)	14	0.9	32.	61.7	0.1	C
(687;2485M)	7	0.5	139.	102.4	0.3	C
(WJ49; 14M)	3	0.7	107.	138.3	0.4	A
(WJ49; 57M)	3	1.8	164.	130.4	0.4	A
(WJ49; 97M)	3	1.0	166.	109.5	0.2	A
(794; 147M)	12	1.6	69.	133.6	0.0	A
(792; 200M)	12	0.8	174.	292.6	0.4	A
(787; 211M)	12	0.2	180.	351.2	0.0	A
(787; 411M)	6	0.5	48.	264.8	0.0	C
(787; 996M)	7	1.0	160.	259.2	0.1	C
(788; 183M)	12	1.1	132.	333.7	0.4	C
(788; 383M)	6	1.0	164.	36.6	0.6	C
(788; 983M)	10	0.9	158.	348.8	0.4	C
(788;2468M)	12	1.6	162.	356.5	0.2	C
(796; 360M)	6	0.3	14.	48.2	0.1	C
(780; 181M)	6	0.3	39.	196.0	0.0	A
(781; 20M)	6	0.4	114.	55.4	0.3	A
(781; 30M)	5	0.2	47.	180.9	0.0	A
(783; 24M)	6	0.4	5.	149.3	0.1	C
(783; 34M)	6	0.4	53.	214.5	0.1	C
(783; 64M)	6	0.5	60.	258.2	0.3	A
(782; 20M)	5	0.4	5.	131.8	0.2	C
(782; 30M)	6	0.6	68.	159.9	0.0	C
(LF70;346M)	3	1.0	172.	299.9	0.2	A
(LF70;589M)	3	1.0	178.	60.8	0.2	C
(KL11;611M)	4	0.5	8.	287.1	0.0	A
(KL11;950M)	4	0.4	15.	19.9	0.2	C
(784; 400M)	6	0.8	180.	299.1	0.2	C

CONSTITUENT MF

U		V		
AMPLITUDE (M/S)*100	PHASE (DEG)	AMPLITUDE (M/S)*100	PHASE (DEG)	STATION
0.9(+/-2.0)	14.7(+/- 95.8)	0.2(+/-1.9)	108.6(+/- 98.9)	(795; 200M)
0.4(+/-0.9)	242.7(+/- 70.7)	0.1(+/-0.6)	246.9(+/- 81.7)	(793; 80M)
0.4(+/-1.8)	353.8(+/- 89.9)	0.2(+/-2.7)	195.9(+/- 92.4)	(685; 198M)
0.5(+/-1.6)	301.4(+/- 91.5)	0.7(+/-1.7)	107.8(+/- 82.2)	(789; 200M)
0.5(+/-1.6)	126.5(+/- 87.4)	0.8(+/-2.7)	273.9(+/- 98.0)	(686; 200M)
0.2(+/-1.0)	80.2(+/-101.0)	0.3(+/-1.8)	252.4(+/- 94.5)	(686; 400M)
0.1(+/-0.8)	21.1(+/- 95.3)	0.2(+/-1.7)	225.9(+/- 89.5)	(686; 985M)
0.5(+/-1.5)	73.2(+/- 85.1)	0.7(+/-3.0)	56.9(+/- 91.1)	(687; 200M)
0.4(+/-1.2)	68.6(+/- 93.7)	0.8(+/-2.6)	61.0(+/- 89.8)	(687; 400M)
0.5(+/-1.1)	71.1(+/- 78.4)	0.7(+/-1.9)	57.9(+/- 78.6)	(687;1000M)
0.4(+/-0.3)	65.6(+/- 53.0)	0.4(+/-1.0)	311.6(+/- 89.8)	(687;2485M)
0.7(+/-0.8)	148.8(+/- 58.8)	0.5(+/-1.6)	255.4(+/- 75.7)	(WJ49; 14M)
0.6(+/-0.5)	166.9(+/- 44.5)	1.7(+/-1.3)	307.0(+/- 30.7)	(WJ49; 57M)
0.3(+/-0.3)	152.7(+/- 90.3)	0.9(+/-0.7)	286.1(+/- 30.4)	(WJ49; 97M)
1.5(+/-2.3)	133.3(+/- 75.4)	0.6(+/-1.5)	135.9(+/- 78.3)	(794; 147M)
0.4(+/-0.9)	12.1(+/- 80.5)	0.8(+/-1.4)	109.5(+/- 74.9)	(792; 200M)
0.0(+/-1.4)	78.6(+/-105.7)	0.2(+/-2.8)	171.2(+/- 97.0)	(787; 211M)
0.4(+/-0.4)	266.2(+/- 63.6)	0.4(+/-1.0)	263.0(+/- 89.1)	(787; 411M)
0.4(+/-1.0)	247.7(+/- 91.8)	1.0(+/-1.7)	80.8(+/- 71.6)	(787; 996M)
0.9(+/-1.4)	313.6(+/- 87.9)	0.8(+/-3.4)	178.1(+/- 99.7)	(788; 183M)
0.7(+/-1.1)	330.5(+/- 92.5)	0.9(+/-2.0)	227.7(+/- 60.5)	(788; 383M)
0.5(+/-0.9)	304.1(+/- 84.0)	0.8(+/-2.3)	178.3(+/- 93.6)	(788; 983M)
0.5(+/-1.1)	338.9(+/- 73.8)	1.5(+/-1.7)	178.4(+/- 63.7)	(788;2468M)
0.1(+/-0.4)	97.1(+/-100.5)	0.3(+/-0.7)	44.3(+/- 83.7)	(796; 360M)
0.2(+/-0.4)	185.8(+/- 84.3)	0.3(+/-0.9)	202.6(+/- 86.9)	(780; 181M)
0.4(+/-1.0)	72.1(+/- 85.8)	0.3(+/-0.8)	177.5(+/- 93.3)	(781; 20M)
0.2(+/-0.6)	171.1(+/- 95.8)	0.2(+/-0.8)	192.5(+/- 84.1)	(781; 30M)
0.1(+/-0.7)	224.3(+/- 98.2)	0.4(+/-0.8)	147.7(+/- 94.5)	(783; 24M)
0.3(+/-0.4)	221.0(+/- 74.7)	0.2(+/-0.7)	202.8(+/- 99.6)	(783; 34M)
0.4(+/-0.6)	235.2(+/- 97.9)	0.4(+/-0.6)	310.0(+/- 86.2)	(783; 64M)
0.2(+/-0.8)	209.0(+/- 99.3)	0.4(+/-0.9)	129.6(+/- 72.2)	(782; 20M)
0.6(+/-0.7)	161.2(+/- 65.6)	0.2(+/-0.8)	152.3(+/- 90.6)	(782; 30M)
0.3(+/-0.3)	357.5(+/- 66.4)	1.0(+/-0.9)	118.1(+/- 52.9)	(LF70;346M)
0.2(+/-0.6)	344.4(+/- 98.4)	1.0(+/-1.8)	241.2(+/- 92.4)	(LF70;589M)
0.1(+/-0.5)	275.8(+/-103.5)	0.5(+/-0.6)	287.3(+/- 60.9)	(KL11;611M)
0.2(+/-0.2)	78.9(+/- 77.6)	0.4(+/-1.1)	12.8(+/-106.6)	(KL11;950M)
0.2(+/-0.2)	209.9(+/- 83.3)	0.8(+/-1.2)	119.2(+/- 62.2)	(784; 400M)

```
FILTER APPLIED TO 20 MIN CURRENT DATA BEFORE DECIMATING TO 3HR

FILTER IS A CARTWRIGHT LOWPASS FILTER OF   45 WEIGHTS
CUTOFF FREQ. IS  .17045455 CPH
AMPLITUDE RESPONSE MARKED BY #
PHASE RESPONSE MARKED BY P

                         POWER PASSED (%)

0........20........40........60........80.......100.  FREQ(CPH)    RESPONSE
<         .         .         .         P         #   .9521E-02   100.13665
<         .         .         .         P         #   .1245E-01   100.22945
<         .         .         .         P         #   .1538E-01   100.34268
<         .         .         .         P         #   .1831E-01   100.47332
<         .         .         .         P         #   .2197E-01   100.65596
<         .         .         .         P         #   .2637E-01   100.89075
<         .         .         .         P         #   .3076E-01   101.12740
<         .         .         .         P         #   .3589E-01   101.37828
<         .         .         .         P         #   .4175E-01   101.59124
<         .         .         .         P         #   .4834E-01   101.66242
<         .         .         .         P         #   .5640E-01   101.38642
<         .         .         .         P         #   .6665E-01   100.20180
<         .         .         .         P       # .   .8057E-01    96.58468
<         .         .         .         P  #      .   .1003E+00    86.56227
<         .         .       # .         P         .   .1355E+00    56.15237
<  #      .         .         .         P         .   .2058E+00     7.07638
#         .         .         .         P         .   .3464E+00      .00001
#         .         .         .         P         .   .6277E+00      .00000
#         .         .         .         P         .   .1157E+01      .00000
-180...-135 ......-90 ......-45.........0........45.
```

Figure 16.   Filter applied to 20 minute current data before decimating to a 3 hour sampling interval.

```
FILTER APPLIED TO 30 MIN DATA BEFORE DECIMATING TO 3HR

FILTER IS A CARTWRIGHT LOWPASS FILTER OF   31 WEIGHTS
CUTOFF FREQ. IS .16666667 CPH
AMPLITUDE RESPONSE MARKED BY #
PHASE RESPONSE MARKED BY P

                         POWER PASSED (%)

0........20........40........60........80.......100.  FREQ(CPH)    RESPONSE
<         .         .         .         P          #  .6348E-02   100.06430
<         .         .         .         P          #  .8301E-02   100.10890
<         .         .         .         P          #  .1025E-01   100.16446
<         .         .         .         P          #  .1221E-01   100.23031
<         .         .         .         P          #  .1465E-01   100.32630
<         .         .         .         P          #  .1758E-01   100.45785
<         .         .         .         P          #  .2051E-01   100.60428
<         .         .         .         P          #  .2393E-01   100.78811
<         .         .         .         P          #  .2783E-01   101.00473
<         .         .         .         P          #  .3223E-01   101.24010
<         .         .         .         P          #  .3760E-01   101.48399
<         .         .         .         P          #  .4443E-01   101.65397
<         .         .         .         P          #  .5371E-01   101.45674
<         .         .         .         P         #.  .6689E-01    99.82899
<         .         .         .         P     #    .  .9033E-01    90.89593
<         .         .    #    .         P          .  .1372E+00    50.88312
#         .         .         .         P          .  .2310E+00     1.94948
#         .         .         .         P          .  .4185E+00      .00002
#         .         .         .         P          .  .7715E+00      .00000
-180...-135 ......-90 ......-45.........0........45.
```

Figure 17.   Filter applied to 30 minute current data before decimating to a 3 hour sampling interval.

```
FILTER APPLIED TO 1HR CURRENT DATA BEFORE DECIMATING TO 3HR

FILTER IS A CARTWRIGHT LOWPASS FILTER OF   21 WEIGHTS
CUTOFF FREQ. IS  .17500000 CPH
AMPLITUDE RESPONSE MARKED BY #
PHASE RESPONSE MARKED BY P

                          POWER PASSED (%)

0.........20........40........60........80........100.  FREQ(CPH)     RESPONSE
<         .         .         .         P         #.  .3174E-02     99.99231
<         .         .         .         P         #.  .4150E-02     99.98693
<         .         .         .         P         #.  .5127E-02     99.98018
<         .         .         .         P         #.  .6104E-02     99.97210
<         .         .         .         P         #.  .7324E-02     99.96015
<         .         .         .         P         #.  .8789E-02     99.94343
<         .         .         .         P         #.  .1025E-01     99.92426
<         .         .         .         P         #.  .1196E-01     99.89913
<         .         .         .         P         #.  .1392E-01     99.86756
<         .         .         .         P         #.  .1611E-01     99.82933
<         .         .         .         P         #.  .1880E-01     99.78081
<         .         .         .         P         #.  .2222E-01     99.72050
<         .         .         .         P         #.  .2686E-01     99.65207
<         .         .         .         P         #.  .3345E-01     99.61144
<         .         .         .         P         #.  .4517E-01     99.82840
<         .         .         .         P          #  .6860E-01    101.23611
<         .         .         .         P   #      .  .1155E+00     88.40869
<  #      .         .         .         P          .  .2092E+00      6.53213
#         .         .         .         P          .  .3857E+00       .00001
-180...-135 ......-90 ......-45.........0.........45.
```

Figure 18. Filter applied to a one hour current data before decimating to a 3 hour sampling interval.

```
FILTER APPLIED TO 3 HR CURRENT DATA BEFORE DECIMATING TO 6 HR

FILTER IS A CARTWRIGHT LOWPASS FILTER OF   33 WEIGHTS
CUTOFF FREQ. IS  .03642188 CPH
AMPLITUDE RESPONSE MARKED BY #
PHASE RESPONSE MARKED BY P

                        POWER PASSED (%)

0........20........40........60........80.......100.  FREQ(CPH)    RESPONSE
<         .         .         .         P         #.  .1057E-02    99.98053
<         .         .         .         P         #.  .1382E-02    99.96713
<         .         .         .         P         #.  .1707E-02    99.95055
<         .         .         .         P         #.  .2032E-02    99.93108
<         .         .         .         P         #.  .2439E-02    99.90306
<         .         .         .         P         #.  .2927E-02    99.86538
<         .         .         .         P         #.  .3415E-02    99.82452
<         .         .         .         P         #.  .3984E-02    99.77515
<         .         .         .         P         #.  .4634E-02    99.72017
<         .         .         .         P         #.  .5366E-02    99.66605
<         .         .         .         P         #.  .6260E-02    99.62082
<         .         .         .         P         #.  .7398E-02    99.61568
<         .         .         .         P         #.  .8943E-02    99.73818
<         .         .         .         P          #  .1114E-01   100.21243
<         .         .         .         P          #  .1504E-01   101.48228
<         .         .         .         P      #   .  .2284E-01    93.51506
<       # .         .         .         P          .  .3845E-01    17.43963
#         .         .         .         P          .  .6967E-01      .00000
#         .         .         .         P          .  .1285E+00      .00000
-180...-135 ......-90 ......-45.........0........45.
```

Figure 19. Filter applied to 3 hour current data to remove residual tides, inertial currents and other high frequency variations before decimating to a 6 hour sampling interval.

```
FILTER APPLIED TO 3 HR CURRENT DATA BEFORE DECIMATING TO 1 DAY
           (USED ONLY FOR STICK PLOT PRODUCTION)

FILTER IS A CARTWRIGHT LOWPASS FILTER OF   97 WEIGHTS
CUTOFF FREQ. IS    .01214063 CPH
AMPLITUDE RESPONSE MARKED BY #
PHASE RESPONSE MARKED BY P

                         POWER PASSED (%)

0........20........40........60........80.......100.   FREQ(CPH)    RESPONSE
<         .         .         .         P         #.   .1057E-02    99.84509
<         .         .         .         P         #.   .1382E-02    99.76126
<         .         .         .         P         #.   .1707E-02    99.68304
<         .         .         .         P         #.   .2032E-02    99.62668
<         .         .         .         P         #.   .2439E-02    99.61452
<         .         .         .         P         #.   .2927E-02    99.71406
<         .         .         .         P         #.   .3415E-02    99.96771
<         .         .         .         P          #   .3984E-02   100.45793
<         .         .         .         P          #   .4634E-02   101.16440
<         .         .         .         P          #   .5366E-02   101.82591
<         .         .         .         P          #   .6260E-02   101.56735
<         .         .         .         P        # .   .7398E-02    97.35880
<         .         .         .         0          .   .8943E-02    80.92726
<         .         #         .         P          .   .1114E-01    41.65040
<#        .         .         .         P          .   .1504E-01     2.49307
#         .         .         .         P          .   .2284E-01      .00029
#         .         .         .         P          .   .3845E-01      .00000
#         .         .         .         P          .   .6967E-01      .00000
#         .         .         .         P          .   .1285E+00      .00000
-180...-135 ......-90 ......-45.........0........45.
```

Figure 20. Filter applied to 3 hour current data before decimating to a one day sampling interval: used only for the production of "stick plots" of current.

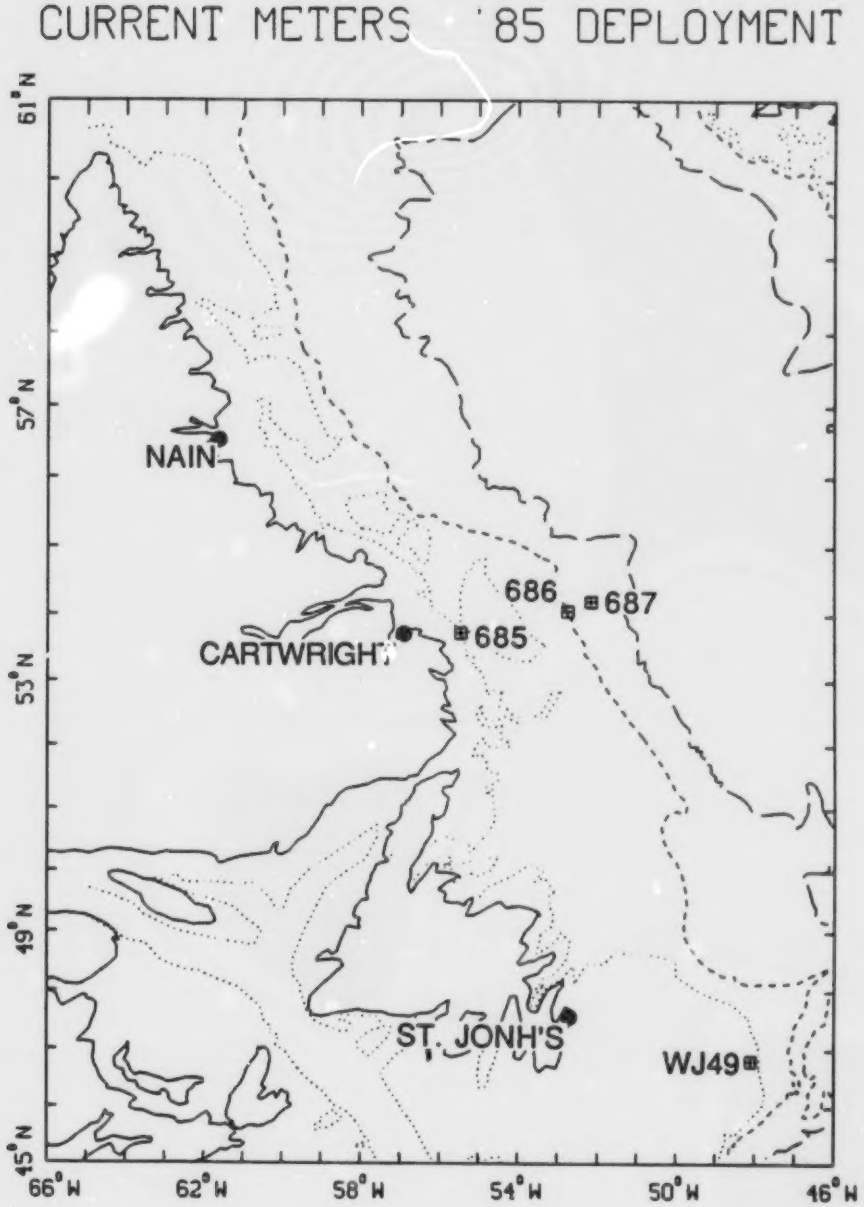

CURRENT METERS '85 DEPLOYMENT
61° N
57° N
53° N
49° N
45° N
66° W
62° W
58° W
54° W
50° W
46° W
NAIN
CARTWRIGHT
685
686
687
ST. JONH'S
WJ49

Figure 21. Location map for current meter moorings during the 1985/86 field year. Isobaths are indicated by (·····) 200 m, (- - - -) 1000 m and (— —) 3000m.

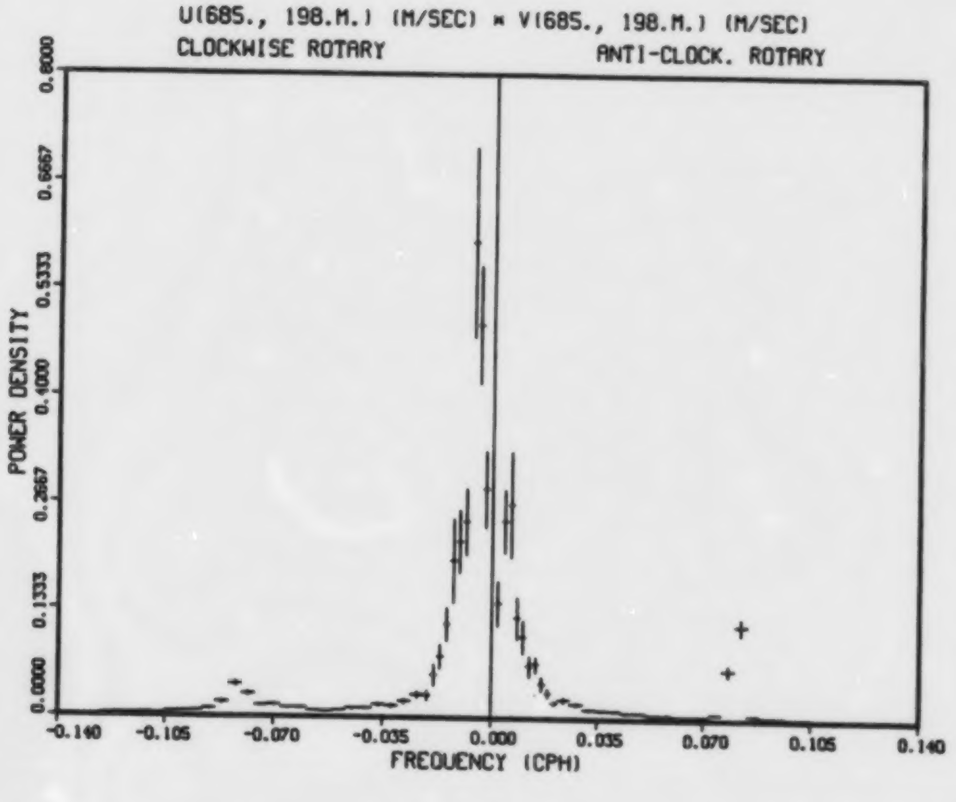
CM(685; 198M) - RESIDUAL STATISTICS

POSITION	53.734 N 55.456 W
BOTTOM DEPTH	200.0 M
DURATION	389.3 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	-1.87	1.46	-.61	.71
SALINITY	PPT	32.58	34.17	33.50	.26
SIGMA-THETA	KG/M**3	26.22	27.35	26.92	.20
N-S COMPONENT	CM/S	-57.26	18.62	-4.91	7.14
E-W COMPONENT	CM/S	-10.14	25.15	6.51	5.74
MAJOR AXIS	CM/S	-59.58	14.18	-7.78	8.35
MINOR AXIS	CM/S	-17.24	23.29	2.44	3.77

MAJOR AXIS ORIENTATION 324.45 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL

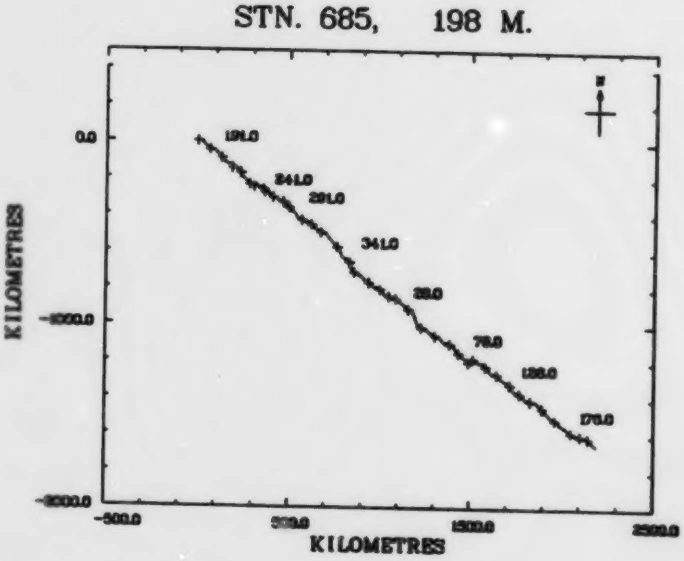


```
HISTOGRAM OF CURRENT SPEED AT (685; 198M)          TIDAL RESIDUALS (M/SEC)
 HAMILTON BANK
 CRUISE    85018.   STATION      685.    LAT   53.7343    LONG   55.4559
 INSTRUMENT 4602         BOTTOM DEPTH  200.0 METRES
 SAMPLED EACH      3600. SECS      START TIME   2:59:55 Z    6/ 7/  85

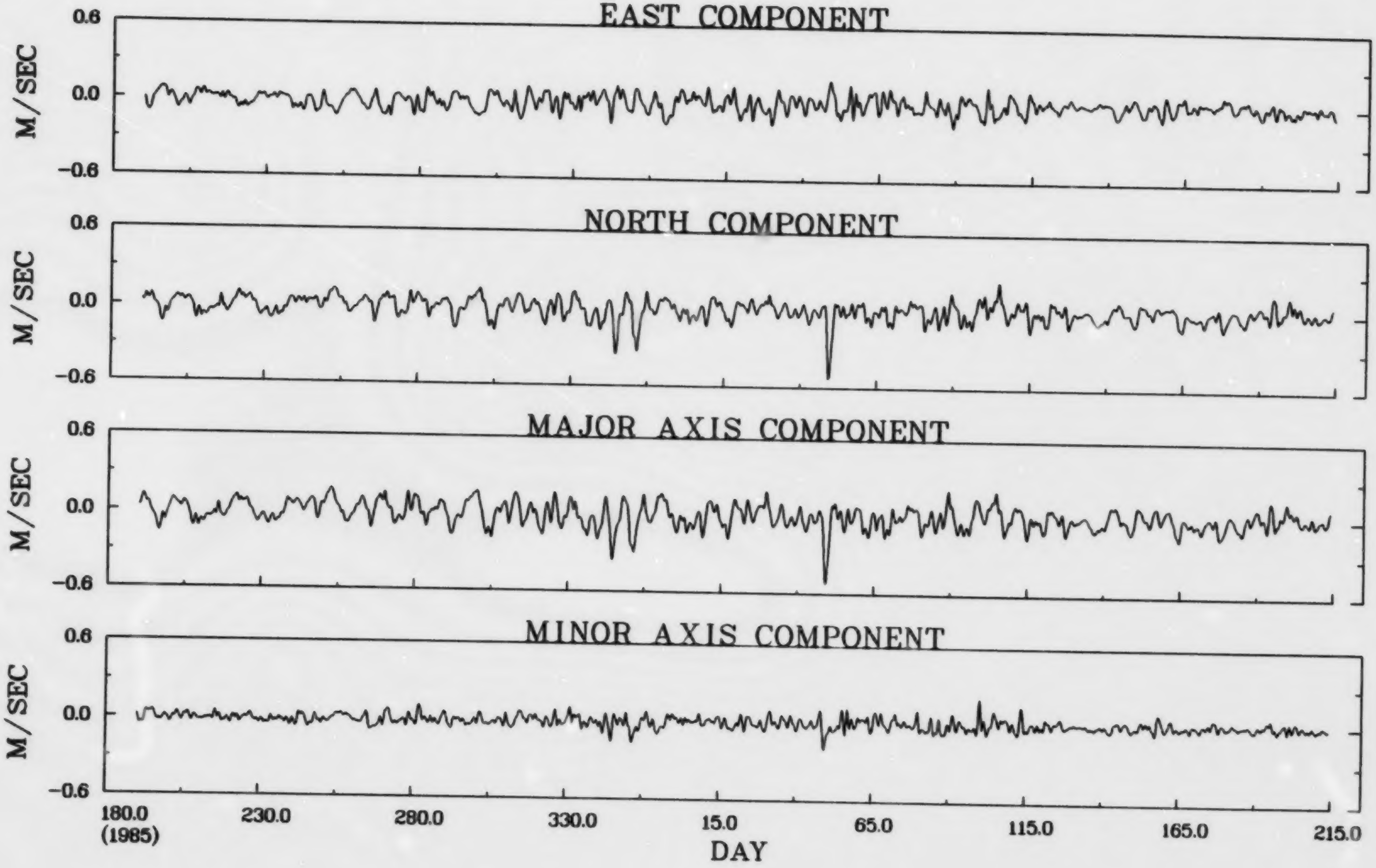
TOTAL NO. OF SAMPLES   9472
NO. OUT OF RANGE          0

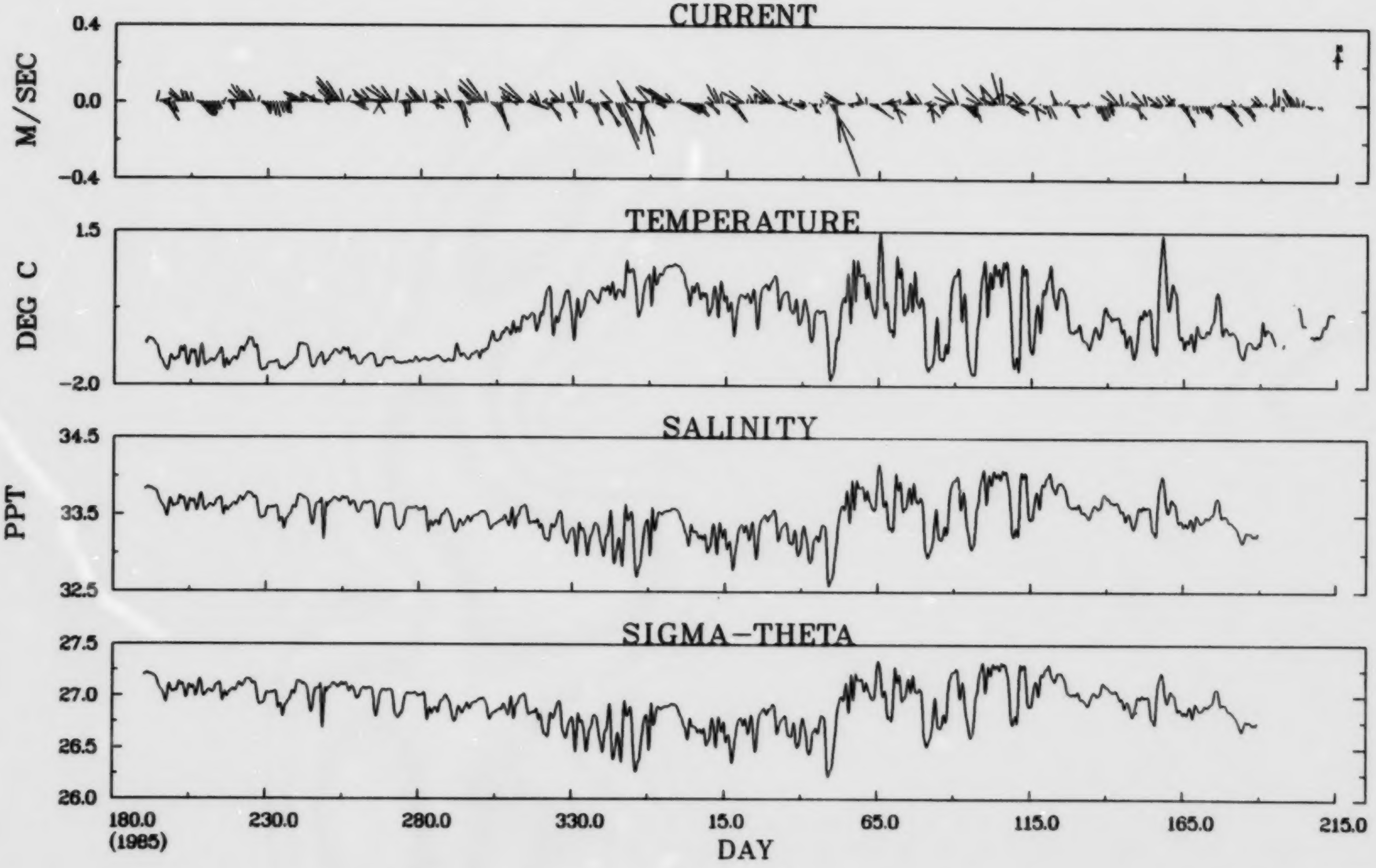
          BAND          NUMBER  PER
                                CENT

     ( 0.00,   .02)     318    3.4 *************
     (  .02,   .04)     854    9.0 ***********************************
     (  .04,   .06)    1205   12.7 *************************************************
     (  .06,   .08)    1187   12.5 ************************************************
     (  .08,   .10)    1235   13.0 **************************************************
     (  .10,   .12)    1039   11.0 ******************************************
     (  .12,   .14)     993   10.5 ****************************************
     (  .14,   .16)     814    8.6 *********************************
     (  .16,   .18)     555    5.9 **********************
     (  .18,   .20)     416    4.4 *****************
     (  .20,   .22)     315    3.3 *************
     (  .22,   .24)     224    2.4 *********
     (  .24,   .26)     111    1.2 ****
     (  .26,   .28)      49     .5 **
     (  .28,   .30)      34     .4 *
     (  .30,   .32)      20     .2 *
     (  .32,   .34)      18     .2 *
     (  .34,   .36)      12     .1
     (  .36,   .38)      12     .1
     (  .38,   .40)      10     .1
     (  .40,   .42)       9     .1
     (  .42,   .44)       6     .1
     (  .44,   .46)       4     .0
     (  .46,   .48)       2     .0
     (  .48,   .50)       3     .0
     (  .50,   .52)       5     .1
     (  .52,   .54)       3     .0
     (  .54,   .56)       6     .1
     (  .56,   .58)       3     .0
     (  .58,   .60)       0    0.0
     (  .60,   .62)       5     .1
     (  .62,   .64)       4     .0
     (  .64,   .66)       1     .0
```

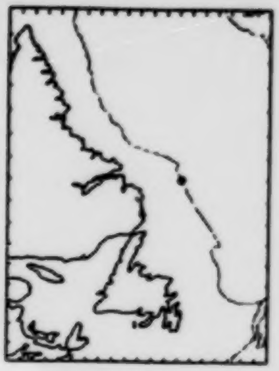

STN. 685,   198 M.

CM(685; 198M) - RESIDUALS
POSITION 53.734 N 55.456 W





CM(685; 198M) - RESIDUALS
POSITION 53.734 N 55.456 W



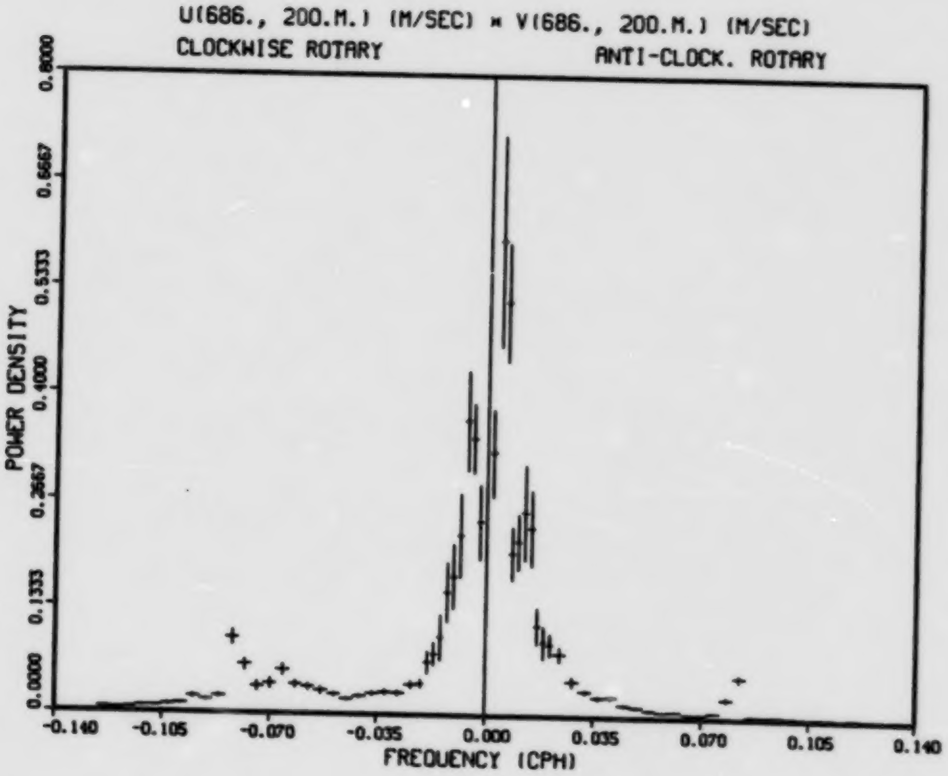
CM(686; 200M) - RESIDUAL STATISTICS

POSITION	54.059 N 52.755 W
BOTTOM DEPTH	1004.0 M
DURATION	388.3 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	-.23	3.48	2.55	.60
SALINITY	PPT	33.74	34.63	34.36	.18
SIGMA-THETA	KG/M**3	27.01	27.57	27.42	.10
N-S COMPONENT	CM/S	-57.67	16.41	-18.23	11.07
E-W COMPONENT	CM/S	-21.41	31.98	9.88	6.80
MAJOR AXIS	CM/S	-60.45	13.25	-20.59	11.70
MINOR AXIS	CM/S	-24.63	26.88	2.43	5.64

MAJOR AXIS ORIENTATION 338.28 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL

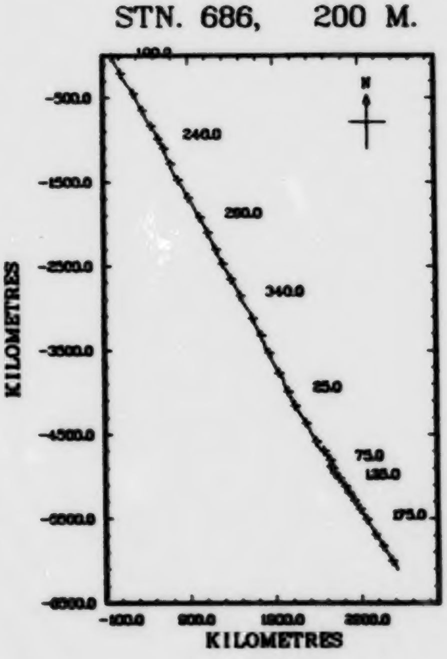


```
HISTOGRAM OF CURRENT SPEED AT (686; 200M)        TIDAL RESIDUALS (M/SEC)
 HAMILTON BANK
 CRUISE    85018.   STATION      686.    LAT   54.0592    LONG   52.7554
 INSTRUMENT 4343          BOTTOM DEPTH 1004.0 METRES
 SAMPLED EACH     3600. SECS       START TIME  17:59:55 Z     4/ 7/  85

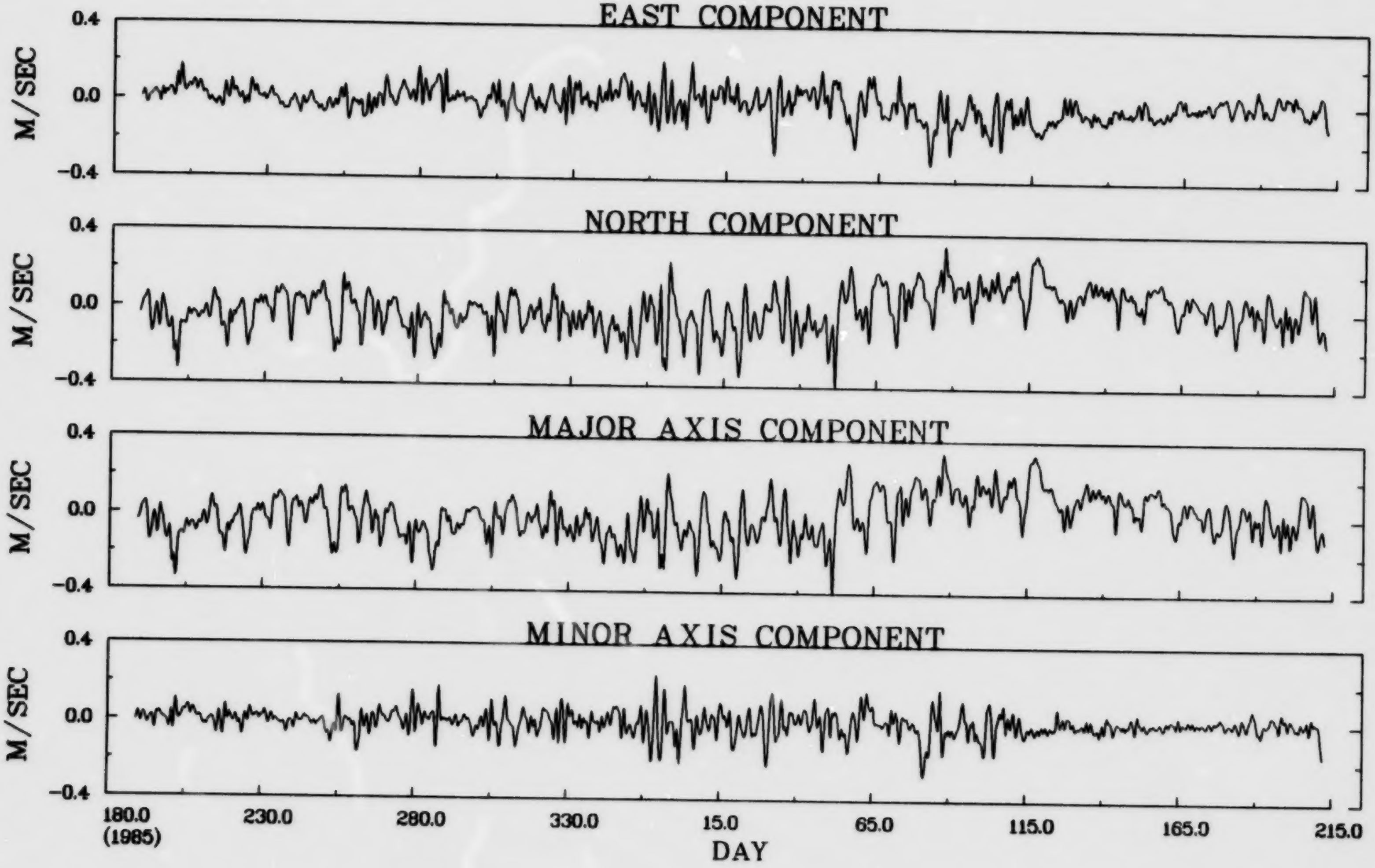
TOTAL NO. OF SAMPLES   9457
NO. OUT OF RANGE          0

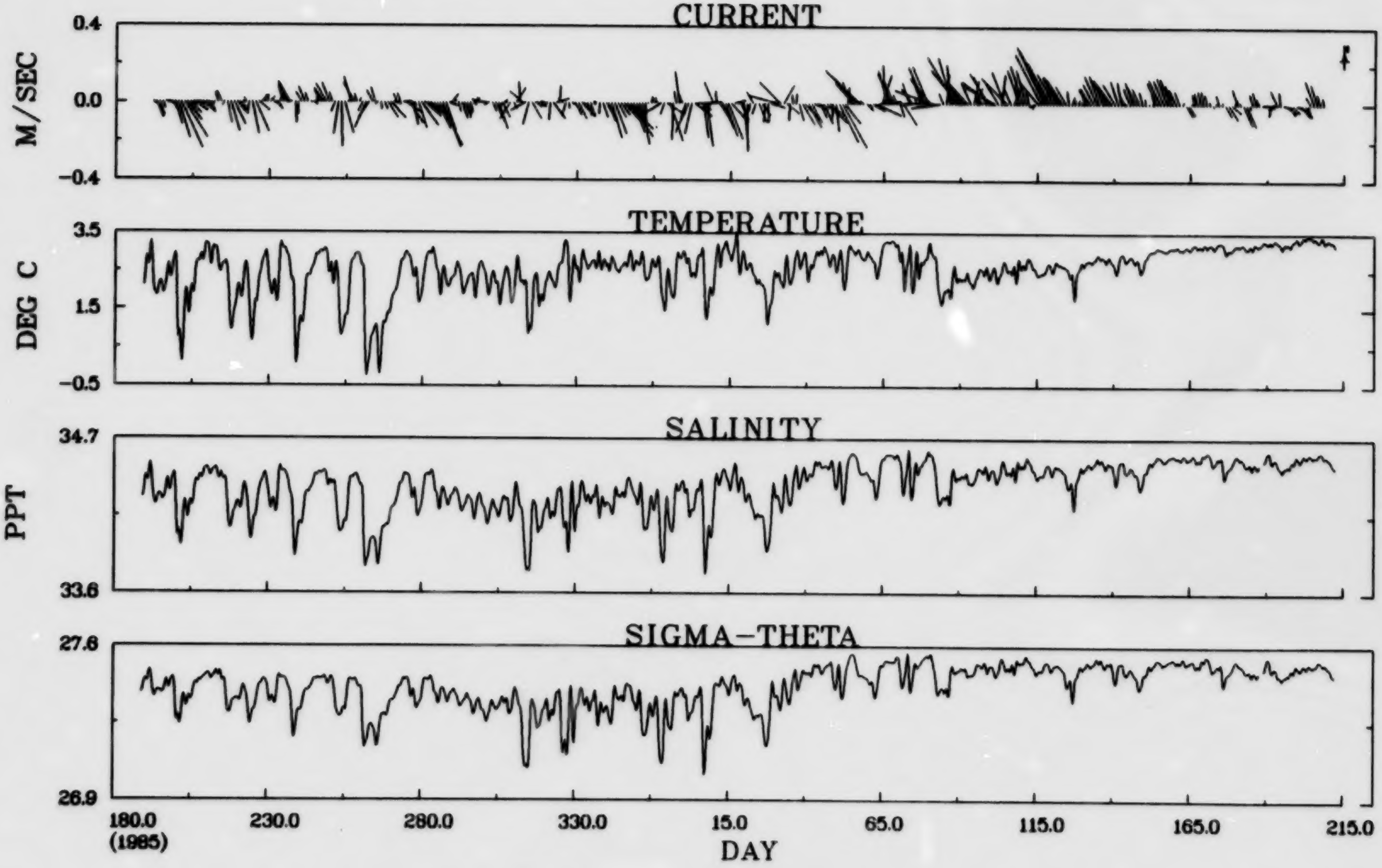

        BAND          NUMBER  PER
                              CENT


    ( 0.00,   .02)      55     .6 ••••
    (  .02,   .04)     177    1.9 •••••••••••••
    (  .04,   .06)     331    3.5 ••••••••••••••••••••••••
    (  .06,   .08)     425    4.5 ••••••••••••••••••••••••••••••
    (  .08,   .10)     487    5.1 •••••••••••••••••••••••••••••••••••
    (  .10,   .12)     521    5.5 •••••••••••••••••••••••••••••••••••••
    (  .12,   .14)     515    5.4 •••••••••••••••••••••••••••••••••••••
    (  .14,   .16)     519    5.5 •••••••••••••••••••••••••••••••••••••
    (  .16,   .18)     532    5.6 ••••••••••••••••••••••••••••••••••••••
    (  .18,   .20)     562    5.9 ••••••••••••••••••••••••••••••••••••••••
    (  .20,   .22)     573    6.1 •••••••••••••••••••••••••••••••••••••••••
    (  .22,   .24)     599    6.3 •••••••••••••••••••••••••••••••••••••••••••
    (  .24,   .26)     561    5.9 ••••••••••••••••••••••••••••••••••••••••
    (  .26,   .28)     618    6.5 ••••••••••••••••••••••••••••••••••••••••••••
    (  .28,   .30)     576    6.1 •••••••••••••••••••••••••••••••••••••••••
    (  .30,   .32)     497    5.3 •••••••••••••••••••••••••••••••••••
    (  .32,   .34)     418    4.4 ••••••••••••••••••••••••••••••
    (  .34,   .36)     368    3.9 ••••••••••••••••••••••••••
    (  .36,   .38)     259    2.7 ••••••••••••••••••
    (  .38,   .40)     215    2.3 •••••••••••••••
    (  .40,   .42)     170    1.8 ••••••••••••
    (  .42,   .44)     110    1.2 ••••••••
    (  .44,   .46)     108    1.1 ••••••••
    (  .46,   .48)      78     .8 ••••••
    (  .48,   .50)      63     .7 ••••
    (  .50,   .52)      40     .4 •••
    (  .52,   .54)      21     .2 •
    (  .54,   .56)      27     .3 ••
    (  .56,   .58)       8     .1 •
    (  .58,   .60)       6     .1
    (  .60,   .62)       8     .1 •
    (  .62,   .64)       2     .0
    (  .64,   .66)       1     .0
    (  .66,   .68)       3     .0
    (  .68,   .70)       0    0.0
    (  .70,   .72)       1     .0
    (  .72,   .74)       2     .0
    (  .74,   .76)       1     .0
```


STN. 686,   200 M.

CM(686; 200M) - RESIDUALS
POSITION 54.059 N 52.755 W





CM(686; 200M) - RESIDUALS
POSITION 54.059 N 52.755 W

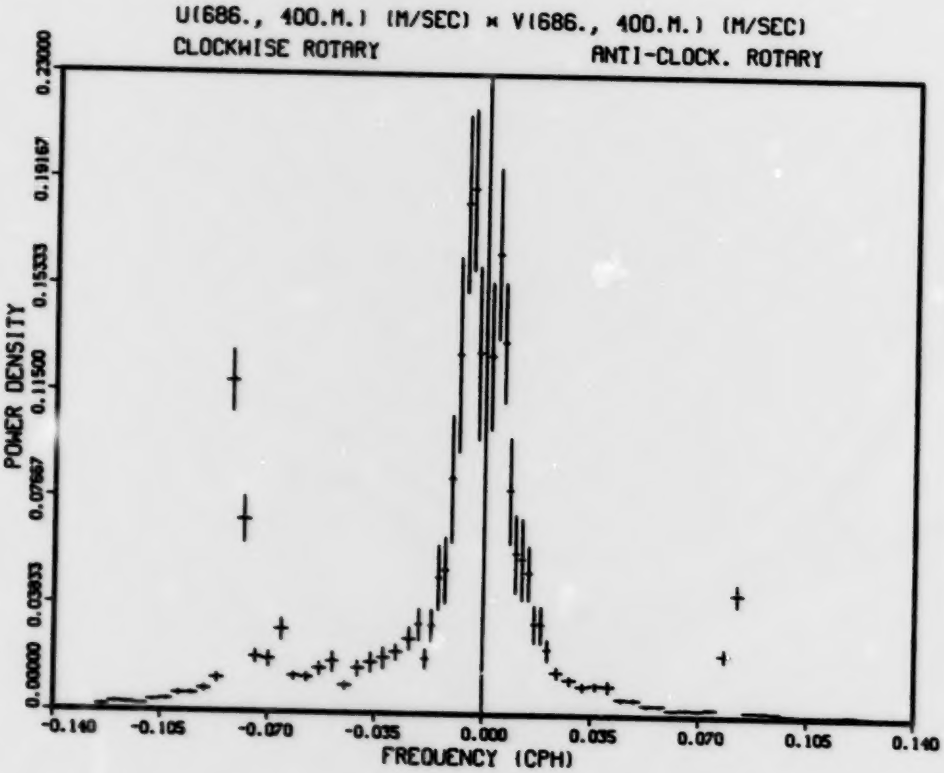
CM(686: 400M) - RESIDUAL STATISTICS

POSITION 54.059 N 52.755 W
BOTTOM DEPTH 1004.0 M
DURATION 388.3 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	2.54	4.09	3.48	.34
SALINITY	PPT	34.53	34.87	34.77	.05
SIGMA-THETA	KG/M**3	27.52	27.73	27.66	.04
N-S COMPONENT	CM/S	-47.86	15.40	-11.31	7.63
E-W COMPONENT	CM/S	-16.67	20.83	5.36	4.46
MAJOR AXIS	CM/S	-50.84	15.00	-12.52	8.33
MINOR AXIS	CM/S	-14.81	16.40	-.01	2.96

MAJOR AXIS ORIENTATION 334.58 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



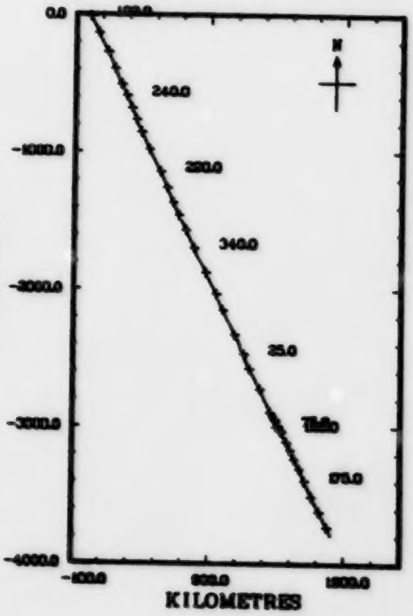
```
HISTOGRAM OF CURRENT SPEED AT (686: 400M)          TIDAL RESIDUALS (M/SEC)
 HAMILTON BANK
 CRUISE    85018.   STATION      686.    LAT   54.0592    LONG   52.7554
 INSTRUMENT 4349          BOTTOM DEPTH 1004.0 METRES
 SAMPLED EACH     3600. SECS      START TIME  17:59:55 Z    4/ 7/  85

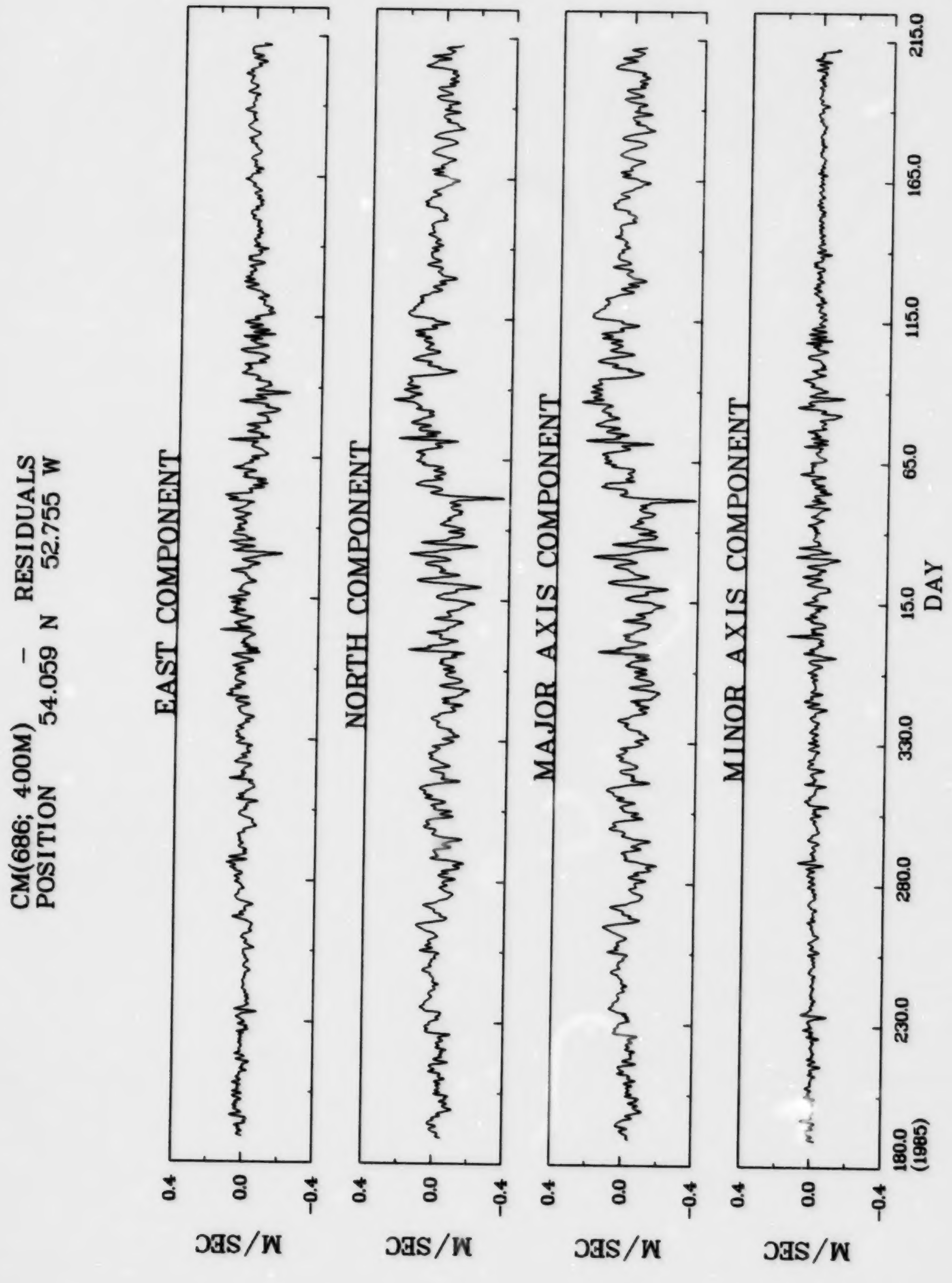
TOTAL NO. OF SAMPLES   9457
NO. OUT OF RANGE          0


       BAND          NUMBER  PER
                             CENT


    ( 0.00,   .02)    122    1.3 ******
    (  .02,   .04)    428    4.5 *********************
    (  .04,   .06)    709    7.5 ***********************************
    (  .06,   .08)    825    8.7 *****************************************
    (  .08,   .10)    965   10.2 ************************************************
    (  .10,   .12)    966   10.2 ************************************************
    (  .12,   .14)    925    9.8 **********************************************
    (  .14,   .16)    938    9.9 ***********************************************
    (  .16,   .18)    900    9.5 *********************************************
    (  .18,   .20)    802    8.5 ****************************************
    (  .20,   .22)    596    6.3 ******************************
    (  .22,   .24)    435    4.6 **********************
    (  .24,   .26)    275    2.9 **************
    (  .26,   .28)    225    2.4 ***********
    (  .28,   .30)    145    1.5 *******
    (  .30,   .32)     71     .8 ****
    (  .32,   .34)     48     .5 **
    (  .34,   .36)     28     .3 *
    (  .36,   .38)     13     .1 *
    (  .38,   .40)     10     .1
    (  .40,   .42)      7     .1
    (  .42,   .44)      5     .1
    (  .44,   .46)      6     .1
    (  .46,   .48)      3     .0
    (  .48,   .50)      1     .0
    (  .50,   .52)      1     .0
    (  .52,   .54)      0    0.0
    (  .54,   .56)      2     .0
    (  .56,   .58)      2     .0
    (  .58,   .60)      1     .0
    (  .60,   .62)      3     .0
```

STN. 686,   400 M.





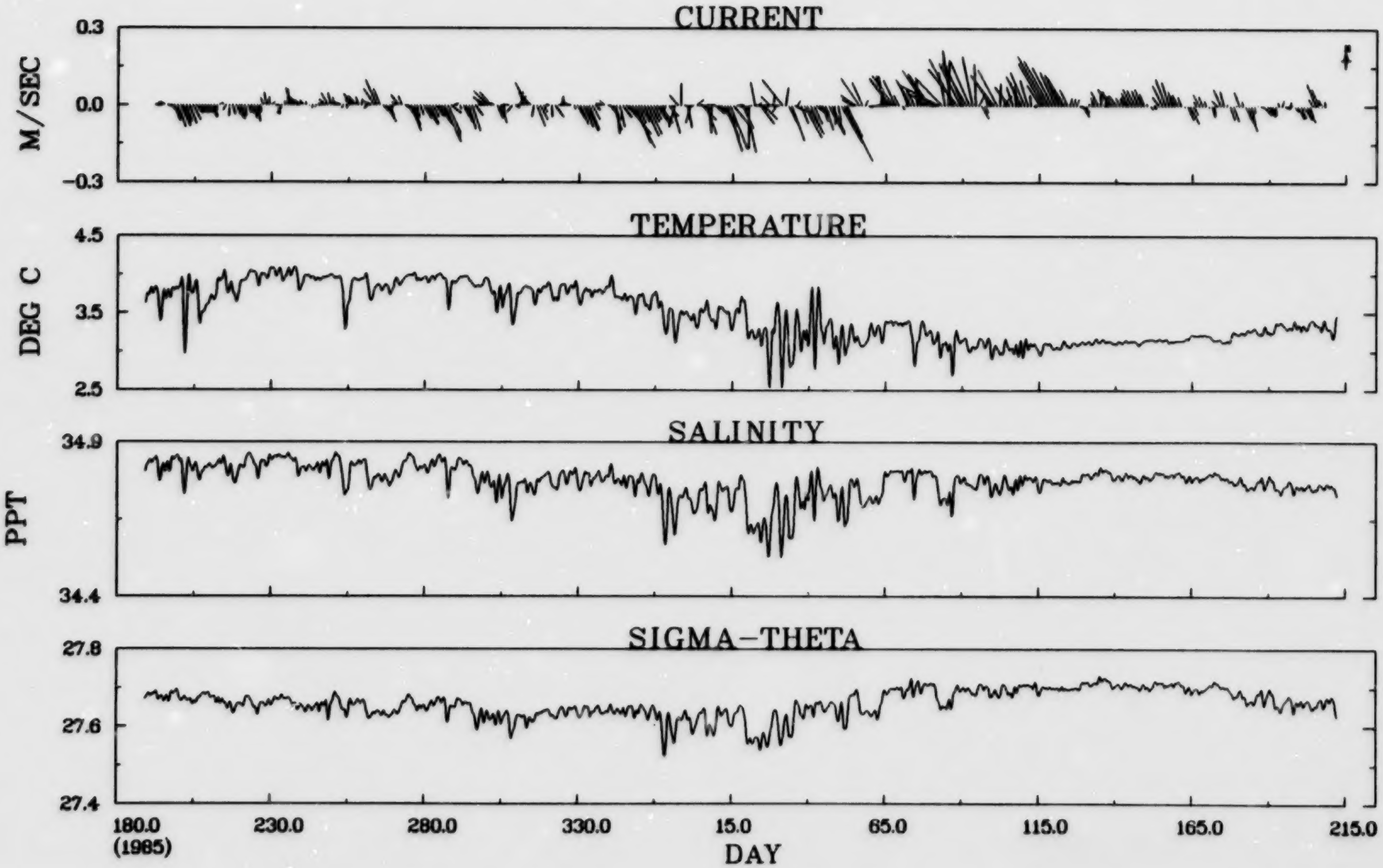
CM(686; 400M) - RESIDUALS
POSITION 54.059 N 52.755 W

EAST COMPONENT

NORTH COMPONENT

MAJOR AXIS COMPONENT

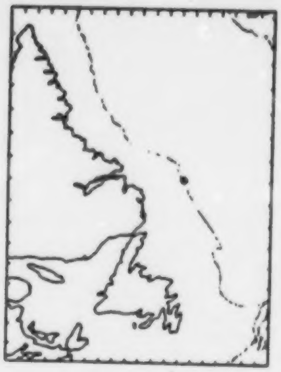
MINOR AXIS COMPONENT



CM(686; 400M) - RESIDUALS
POSITION 54.059 N 52.755 W

CM(686; 985M) - RESIDUAL STATISTICS

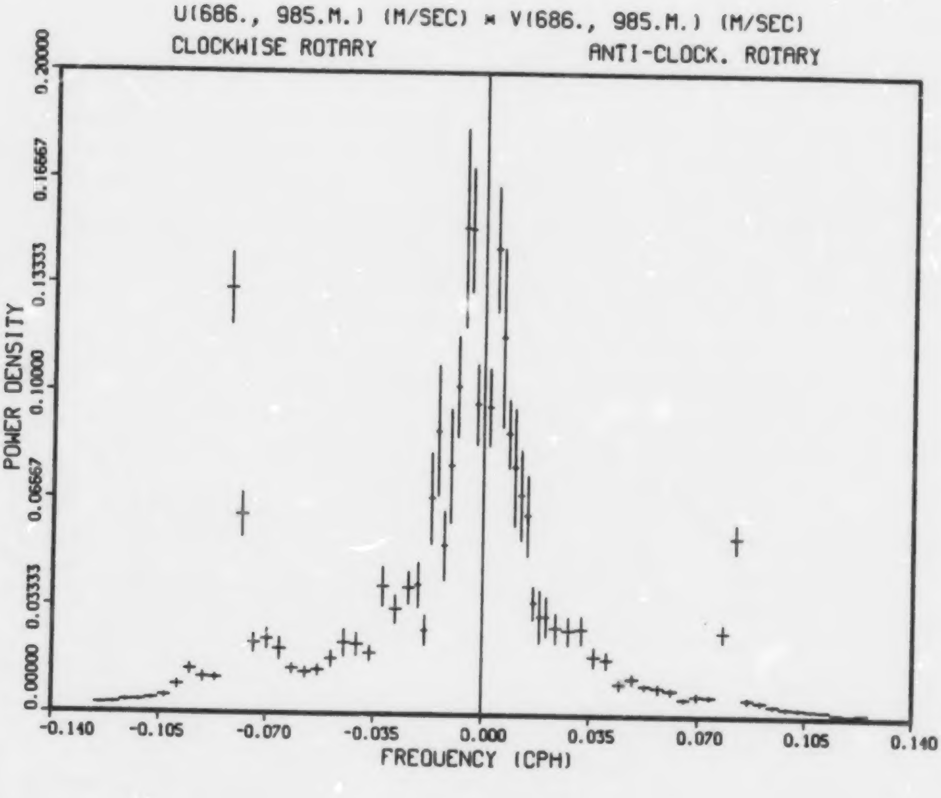
POSITION	54.059 N 52.755 W
BOTTOM DEPTH	1004.0 M
DURATION	388.3 DAYS



		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	3.10	3.78	3.42	.20
SALINITY	PPT	34.49	34.61	34.55	.02
SIGMA-THETA	KG/M**3	27.44	27.54	27.48	.02
N-S COMPONENT	CM/S	-32.06	10.05	-7.61	6.23
E-W COMPONENT	CM/S	-12.20	18.43	2.66	3.46
MAJOR AXIS	CM/S	-35.77	9.03	-8.05	6.68
MINOR AXIS	CM/S	-13.05	9.88	-.50	2.49

MAJOR AXIS ORIENTATION 337.16 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



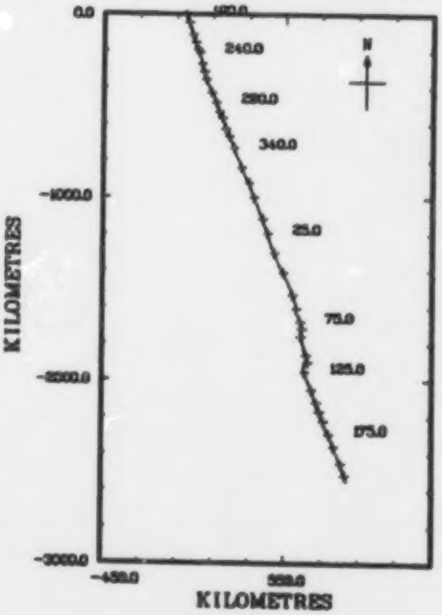
```
HISTOGRAM OF CURRENT SPEED AT (686; 985M)          TIDAL RESIDUALS (M/SEC)
 HAMILTON BANK
 CRUISE    85018.   STATION      686.    LAT   54.0592    LONG   52.7554
 INSTRUMENT 4601          BOTTOM DEPTH 1004.0 METRES
 SAMPLED EACH      3600. SECS       START TIME  17:59:55 Z    4/ 7/  85

TOTAL NO. OF SAMPLES   9457
NO. OUT OF RANGE          0

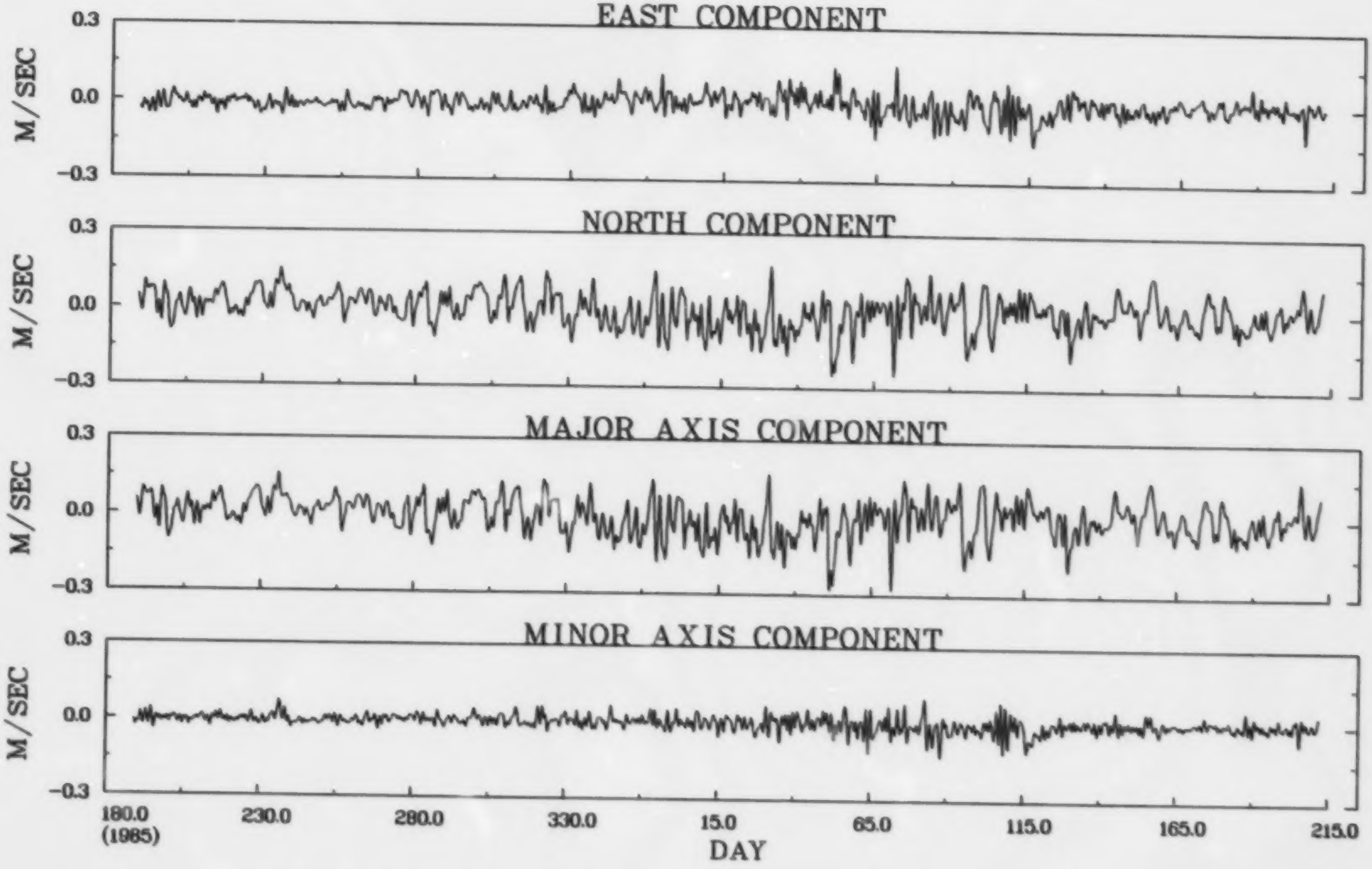

         BAND          NUMBER  PER
                               CENT

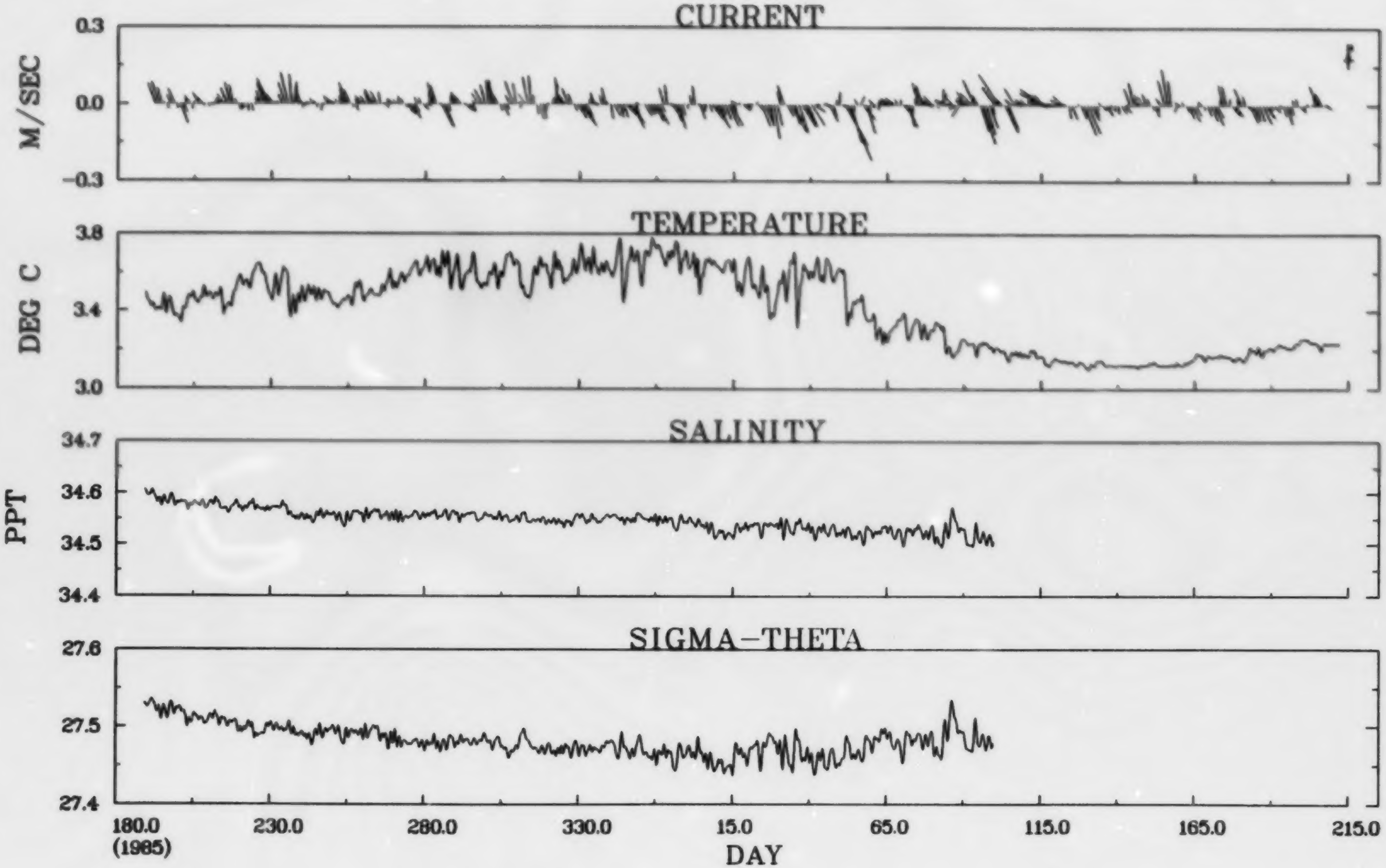
     ( 0.00,   .02)     380    4.0 *************
     (  .02,   .04)    1090   11.5 ************************************
     (  .04,   .06)    1409   14.9 ***********************************************
     (  .06,   .08)    1441   15.2 ************************************************
     (  .08,   .10)    1151   12.2 **************************************
     (  .10,   .12)    1004   10.6 *********************************
     (  .12,   .14)     870    9.2 *****************************
     (  .14,   .16)     655    6.9 **********************
     (  .16,   .18)     482    5.1 ****************
     (  .18,   .20)     302    3.2 **********
     (  .20,   .22)     245    2.6 ********
     (  .22,   .24)     155    1.6 *****
     (  .24,   .26)      91    1.0 ***
     (  .26,   .28)      72     .8 **
     (  .28,   .30)      39     .4 *
     (  .30,   .32)      20     .2 *
     (  .32,   .34)       6     .1
     (  .34,   .36)       6     .1
     (  .36,   .38)       7     .1
     (  .38,   .40)       3     .0
     (  .40,   .42)       4     .0
     (  .42,   .44)      12     .1
     (  .44,   .46)       5     .1
     (  .46,   .48)       3     .0
     (  .48,   .50)       2     .0
     (  .50,   .52)       2     .0
     (  .52,   .54)       1     .0
```

STN. 686,   985 M.



CM(686; 985M) – RESIDUALS
POSITION 54.059 N 52.755 W





CM(686; 985M) – RESIDUALS
POSITION 54.059 N 52.755 W

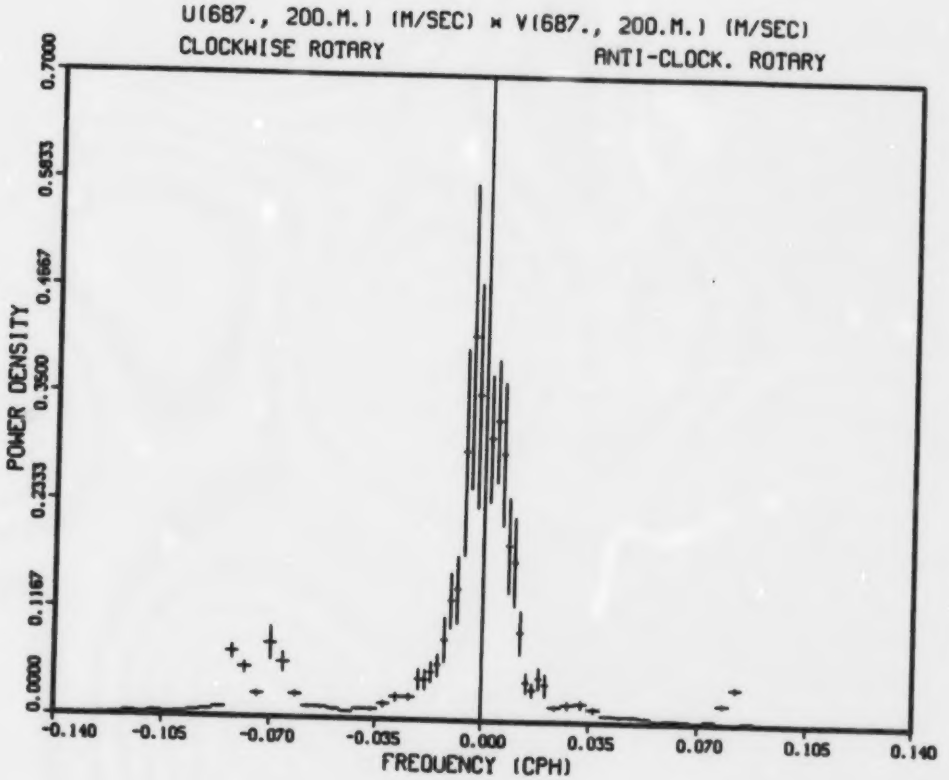
CM(687: 200M) - RESIDUAL STATISTICS

POSITION	54.200 N 52.173 W
BOTTOM DEPTH	2501.0 M
DURATION	388.8 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	2.12	4.02	3.23	.29
SALINITY	PPT	34.15	34.50	34.31	.05
SIGMA-THETA	KG/M**3	27.20	27.47	27.31	.04
N-S COMPONENT	CM/S	-51.26	20.59	-14.38	7.58
E-W COMPONENT	CM/S	-22.72	32.76	3.96	5.94
MAJOR AXIS	CM/S	-48.67	21.01	-14.87	7.80
MINOR AXIS	CM/S	-26.26	33.59	-1.19	5.65

MAJOR AXIS ORIENTATION 340.03 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL

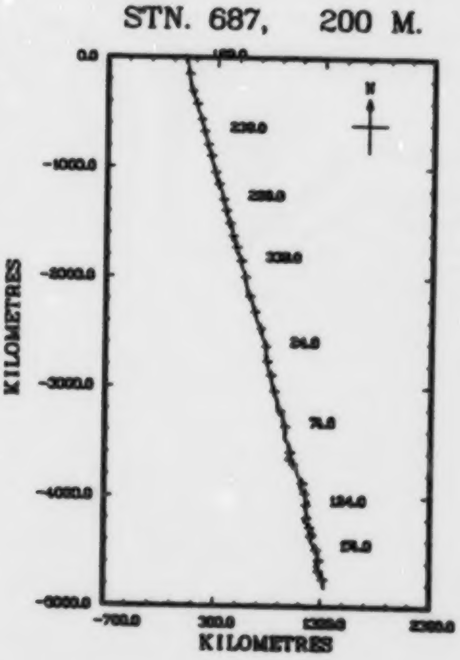


```
HISTOGRAM OF CURRENT SPEED AT (687; 200M)          TIDAL RESIDUALS (M/SEC)
 HAMILTON BANK
 CRUISE    85018.   STATION     687.    LAT   54.1997     LONG   52.1727
 INSTRUMENT 4201         BOTTOM DEPTH 2501.0 METRES
 SAMPLED EACH      3600. SECS       START TIME   1:59:55 Z    4/ 7/  85

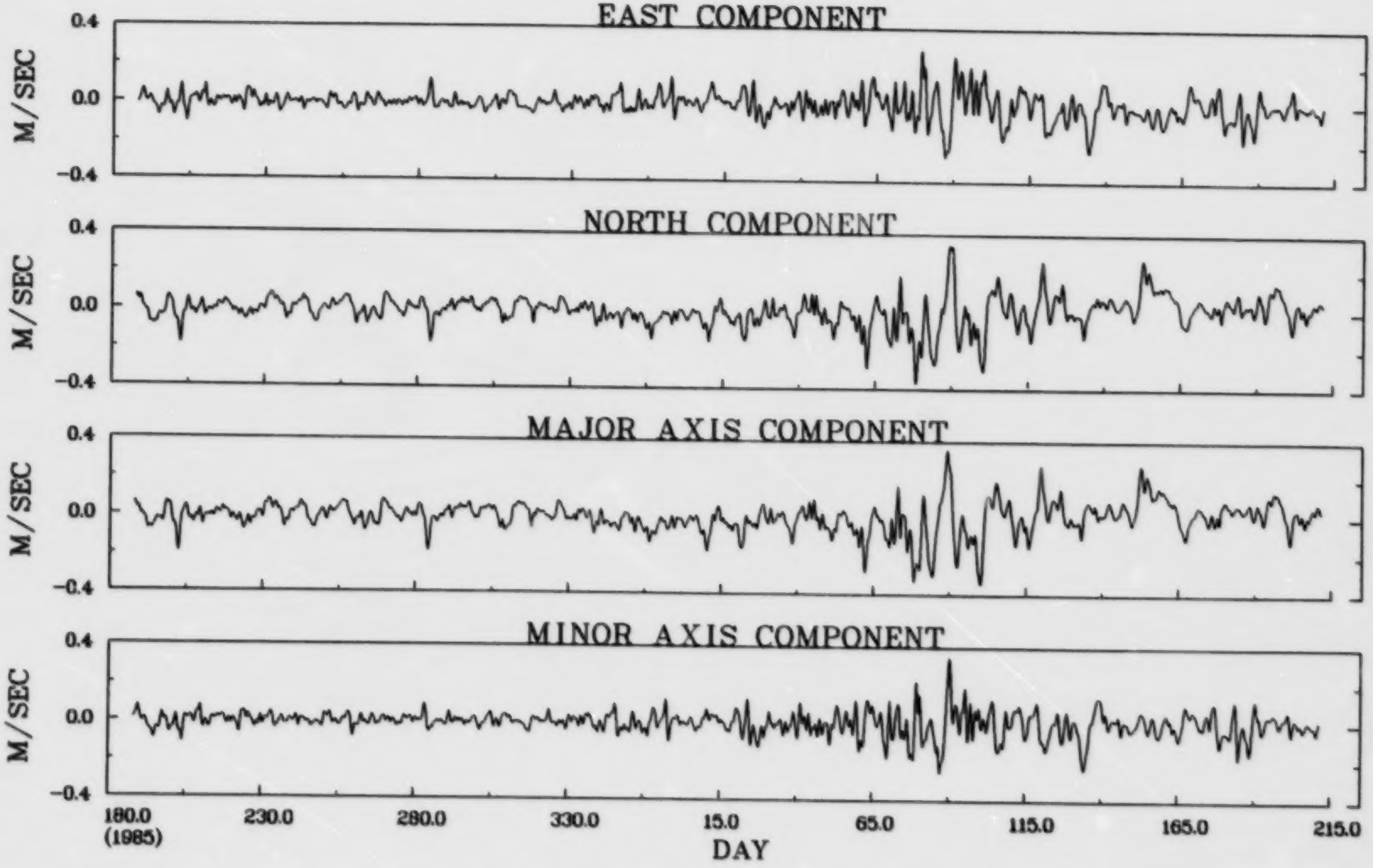
TOTAL NO. OF SAMPLES   9463
NO. OUT OF RANGE          0

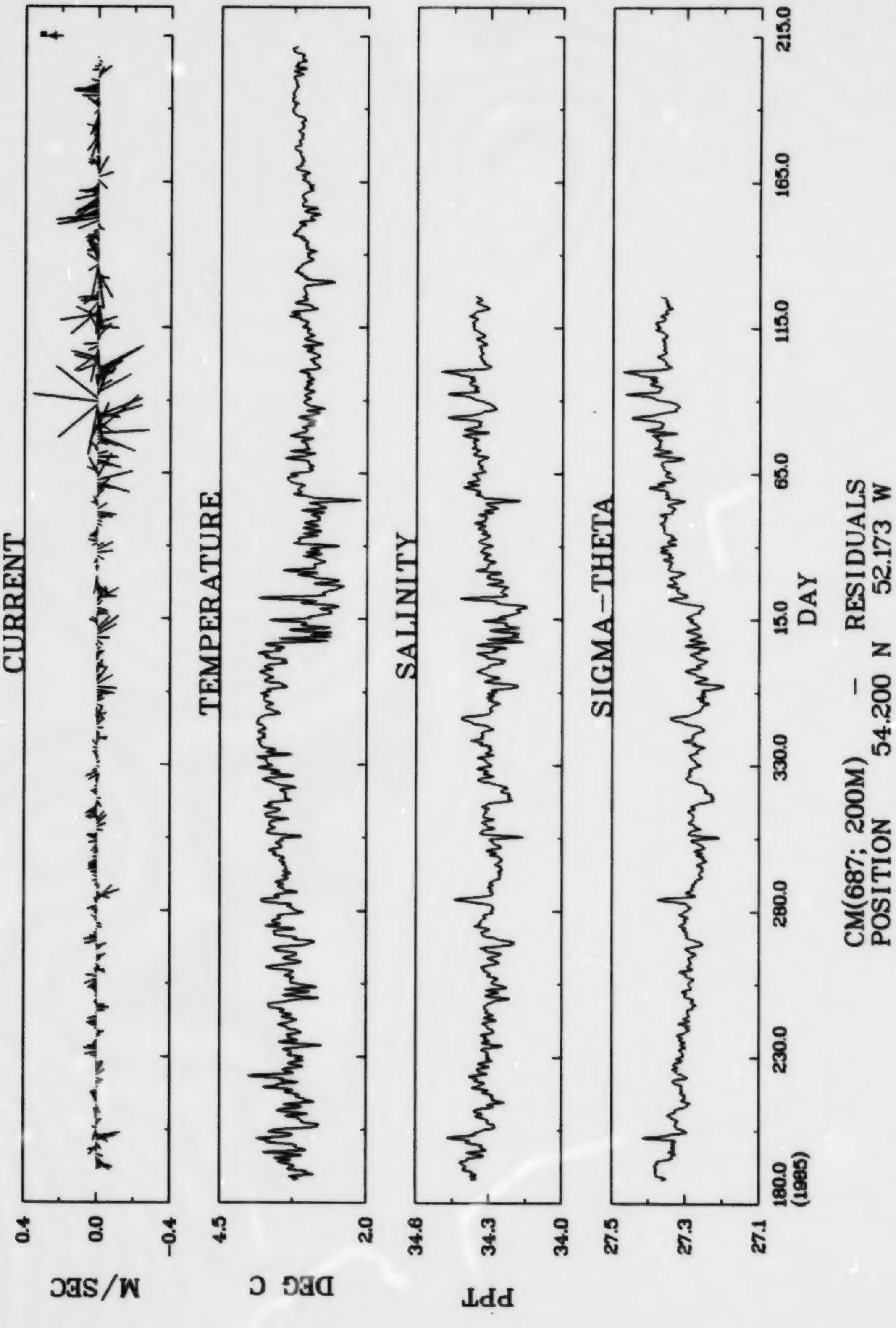

        BAND          NUMBER  PER
                              CENT


    ( 0.00,    .02)      13     .1 •
    (  .02,    .04)      96    1.0 ••••
    (  .04,    .06)     308    3.3 •••••••••••••
    (  .06,    .08)     479    5.1 ••••••••••••••••••••
    (  .08,    .10)     746    7.9 •••••••••••••••••••••••••••••••
    (  .10,    .12)    1035   10.9 •••••••••••••••••••••••••••••••••••••••••••
    (  .12,    .14)    1086   11.5 •••••••••••••••••••••••••••••••••••••••••••••
    (  .14,    .16)    1157   12.2 ••••••••••••••••••••••••••••••••••••••••••••••••
    (  .16,    .18)    1110   11.7 ••••••••••••••••••••••••••••••••••••••••••••••
    (  .18,    .20)     906    9.6 ••••••••••••••••••••••••••••••••••••••
    (  .20,    .22)     722    7.6 ••••••••••••••••••••••••••••••
    (  .22,    .24)     526    5.6 ••••••••••••••••••••••
    (  .24,    .26)     337    3.6 ••••••••••••••
    (  .26,    .28)     240    2.5 ••••••••••
    (  .28,    .30)     179    1.9 •••••••
    (  .30,    .32)     137    1.4 ••••••
    (  .32,    .34)     100    1.1 ••••
    (  .34,    .36)      75     .8 •••
    (  .36,    .38)      43     .5 ••
    (  .38,    .40)      30     .3 •
    (  .40,    .42)      24     .3 •
    (  .42,    .44)      34     .4 •
    (  .44,    .46)      23     .2 •
    (  .46,    .48)      24     .3 •
    (  .48,    .50)      14     .1 •
    (  .50,    .52)       5     .1
    (  .52,    .54)       8     .1
    (  .54,    .56)       6     .1
```

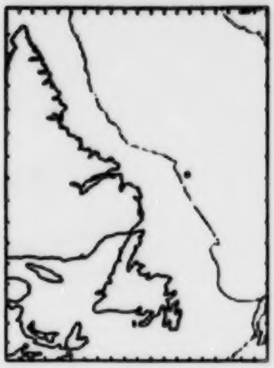


CM(687; 200M) - RESIDUALS
POSITION 54.200 N 52.173 W





CM(687; 200M) — RESIDUALS
POSITION 54.200 N 52.173 W



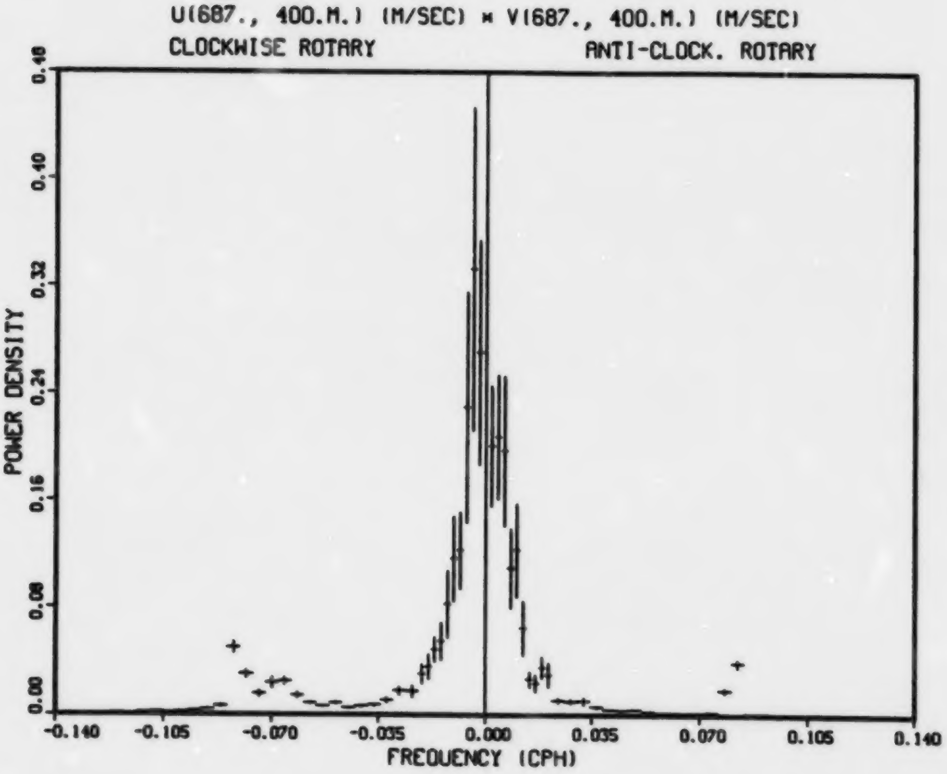
CM(687; 400M) - RESIDUAL STATISTICS

POSITION	54.200 N 52.173 W
BOTTOM DEPTH	2501.0 M
DURATION	388.8 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	2.81	4.00	3.50	.34
SALINITY	PPT	34.53	34.74	34.62	.04
SIGMA-THETA	KG/M**3	27.49	27.65	27.54	.02
N-S COMPONENT	CM/S	-41.65	15.22	-13.66	6.42
E-W COMPONENT	CM/S	-20.50	27.27	2.86	5.20
MAJOR AXIS	CM/S	-45.20	11.91	-13.65	6.68
MINOR AXIS	CM/S	-25.33	28.95	-2.90	4.86

MAJOR AXIS ORIENTATION 336.16 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



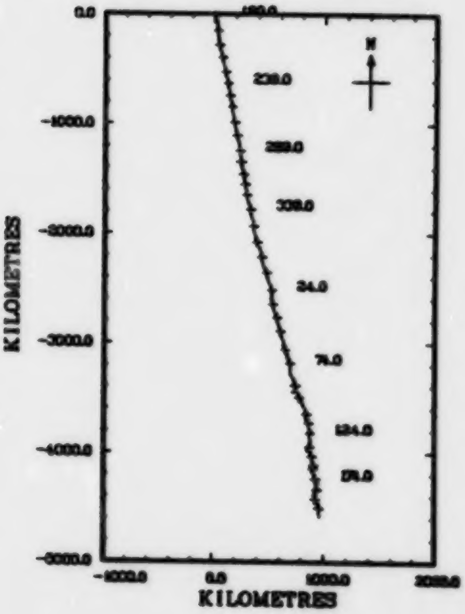
```
HISTOGRAM OF CURRENT SPEED AT (687: 400M)          TIDAL RESIDUALS (M/SEC)
 HAMILTON BANK
 CRUISE    85018.   STATION      687.    LAT   54.1997    LONG   52.1727
 INSTRUMENT 4208          BOTTOM DEPTH 2501.0 METRES
 SAMPLED EACH      3600. SECS      START TIME   1:59:55 Z    4/ 7/  85

TOTAL NO. OF SAMPLES   9463
NO. OUT OF RANGE          0

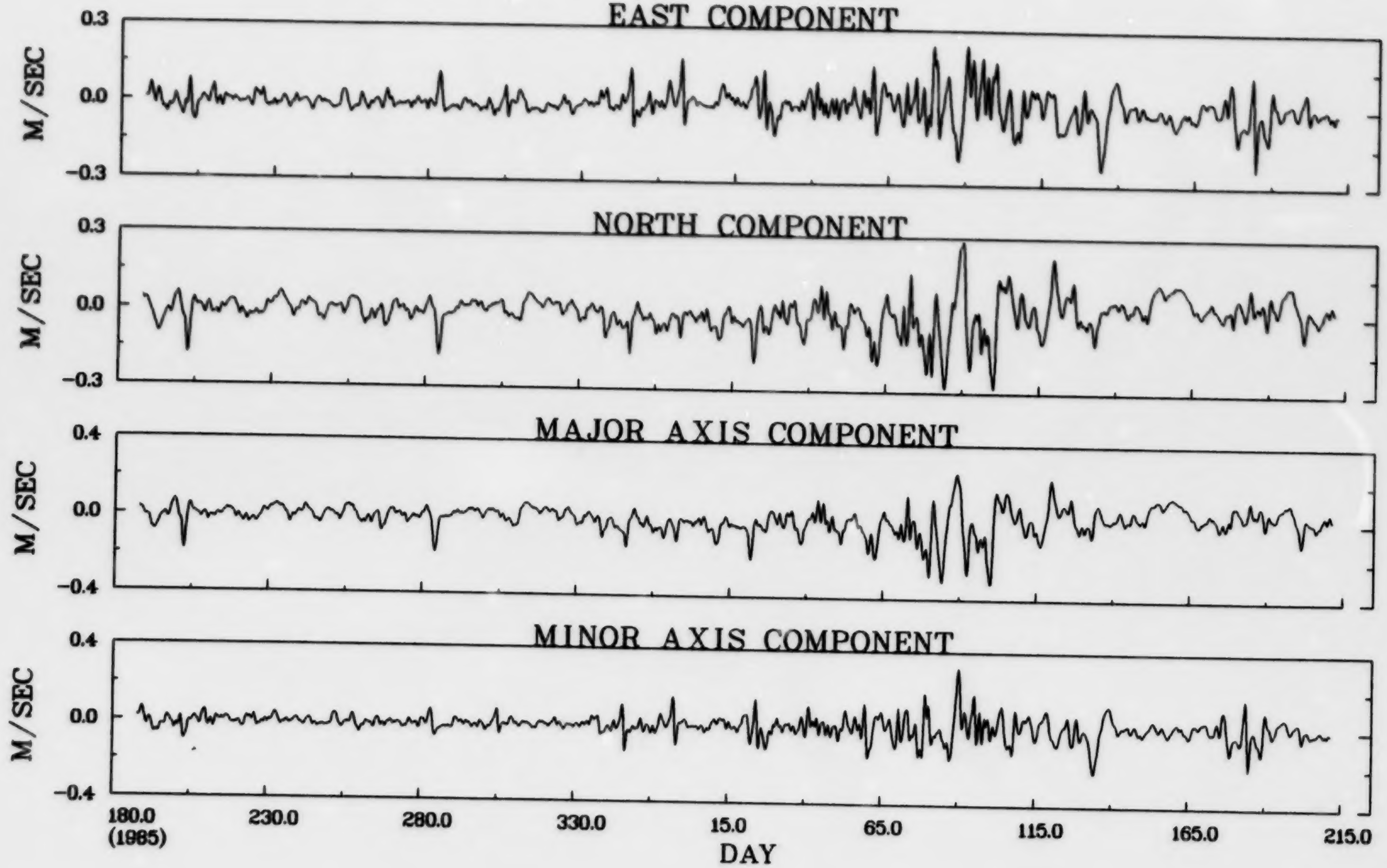

         BAND          NUMBER  PER
                               CENT

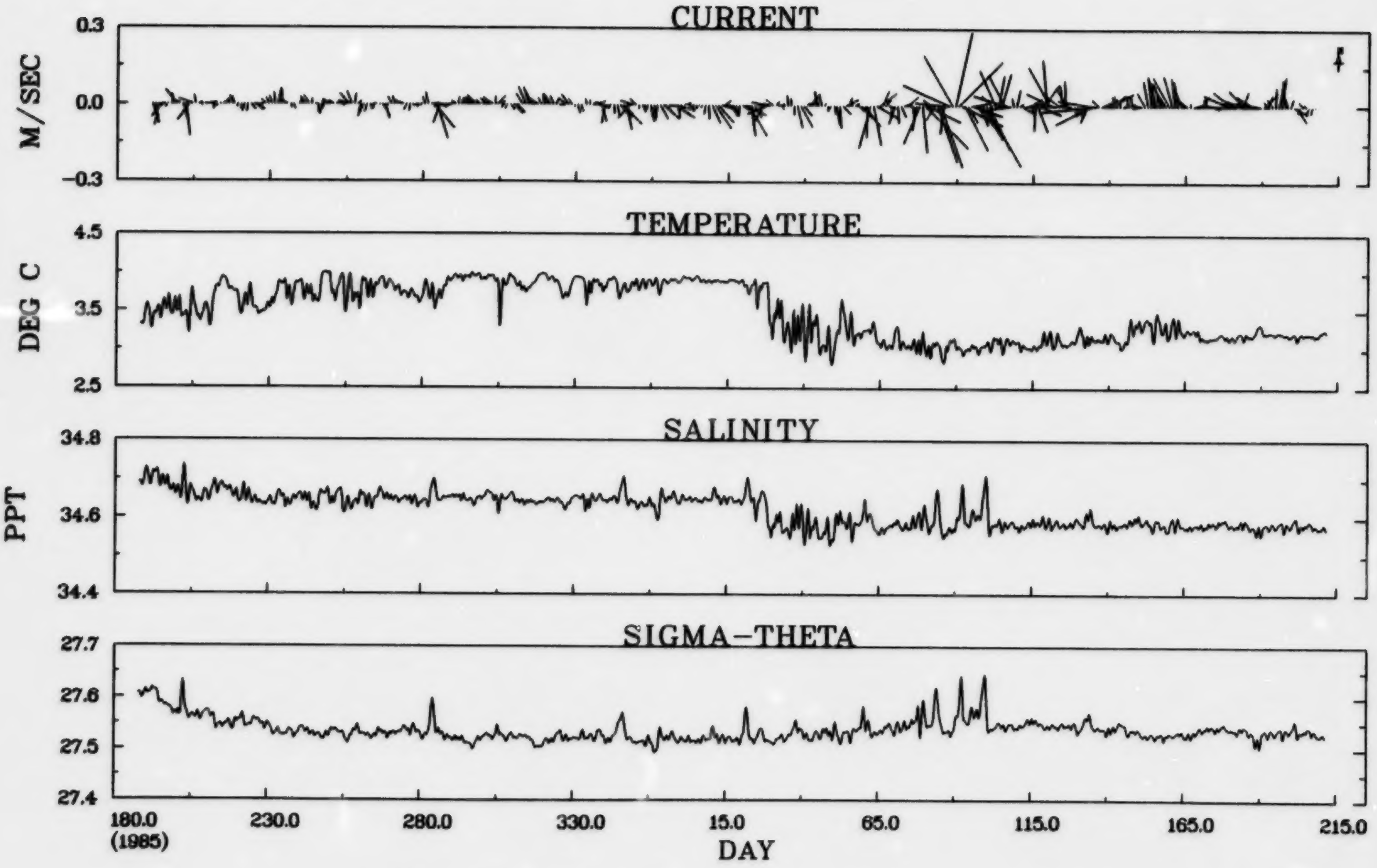
     ( 0.00,   .02)      61     .6 **
     (  .02,   .04)     158    1.7 *****
     (  .04,   .06)     269    2.8 ********
     (  .06,   .08)     400    4.2 ************
     (  .08,   .10)     814    8.6 *************************
     (  .10,   .12)    1297   13.7 *****************************************
     (  .12,   .14)    1551   16.4 ************************************************
     (  .14,   .16)    1399   14.8 ********************************************
     (  .16,   .18)    1116   11.8 ***********************************
     (  .18,   .20)     759    8.0 ************************
     (  .20,   .22)     511    5.4 ****************
     (  .22,   .24)     314    3.3 **********
     (  .24,   .26)     232    2.5 *******
     (  .26,   .28)     148    1.6 *****
     (  .28,   .30)      98    1.0 ***
     (  .30,   .32)     106    1.1 ***
     (  .32,   .34)      78     .8 **
     (  .34,   .36)      43     .5 *
     (  .36,   .38)      19     .2 *
     (  .38,   .40)      26     .3 *
     (  .40,   .42)      19     .2 *
     (  .42,   .44)      19     .2 *
     (  .44,   .46)      11     .1
     (  .46,   .48)      10     .1
     (  .48,   .50)       4     .0
     (  .50,   .52)       1     .0
```

STN. 687,   400 M.



CM(687; 400M) - RESIDUALS
POSITION 54.200 N 52.173 W





CM(687; 400M) – RESIDUALS
POSITION 54.200 N 52.173 W

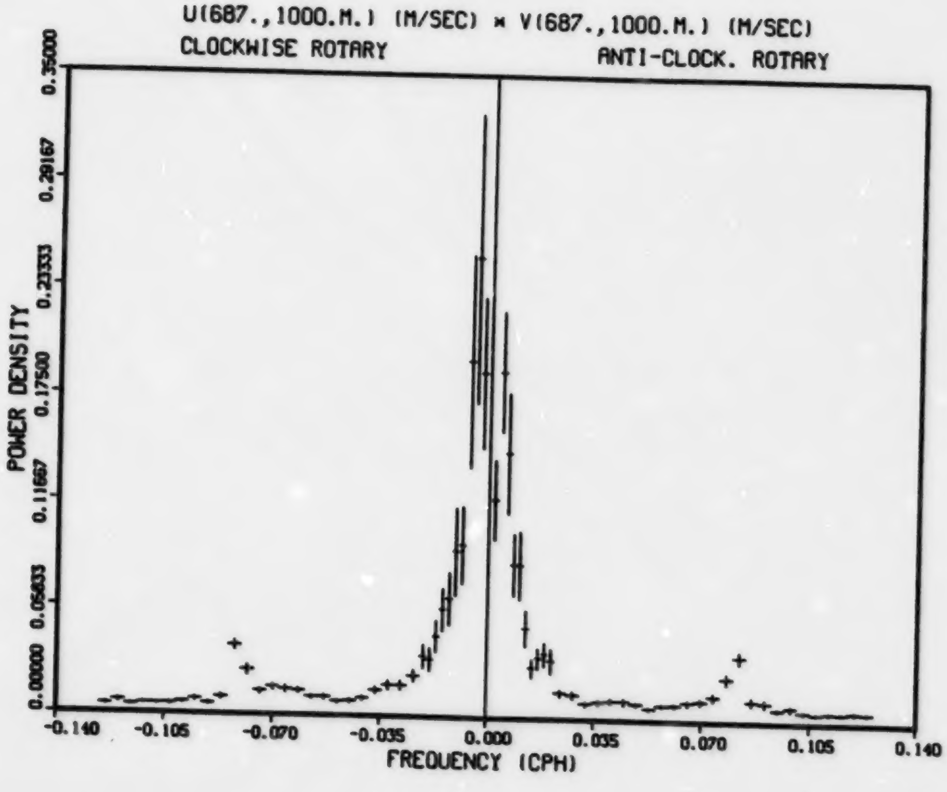
CM(687;1000M) - RESIDUAL STATISTICS

POSITION	54.200 N 52.173 W
BOTTOM DEPTH	2501.0 M
DURATION	372.0 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	3.00	3.45	3.24	.09
SALINITY	PPT	34.75	34.90	34.81	.03
SIGMA-THETA	KG/M**3	27.68	27.79	27.72	.02
N-S COMPONENT	CM/S	-37.58	6.42	-11.34	5.88
E-W COMPONENT	CM/S	-20.78	23.61	2.81	4.48
MAJOR AXIS	CM/S	-36.65	5.09	-11.57	6.12
MINOR AXIS	CM/S	-25.97	22.11	-1.61	4.16

MAJOR AXIS ORIENTATION 338.20 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



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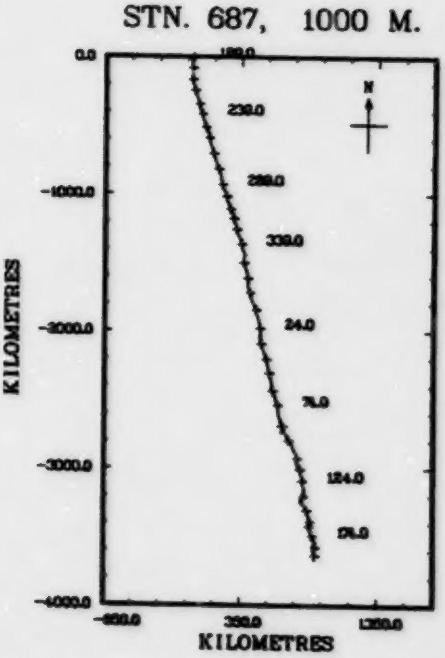
HISTOGRAM OF CURRENT SPEED AT (687;1000M)          TIDAL RESIDUALS (M/SEC)
 HAMILTON BANK
 CRUISE    85018.   STATION      687.    LAT   54.1997    LONG   52.1727
 INSTRUMENT 4342          BOTTOM DEPTH 2501.0 METRES
 SAMPLED EACH     3600. SECS      START TIME   1:59:55 Z    4/ 7/  85

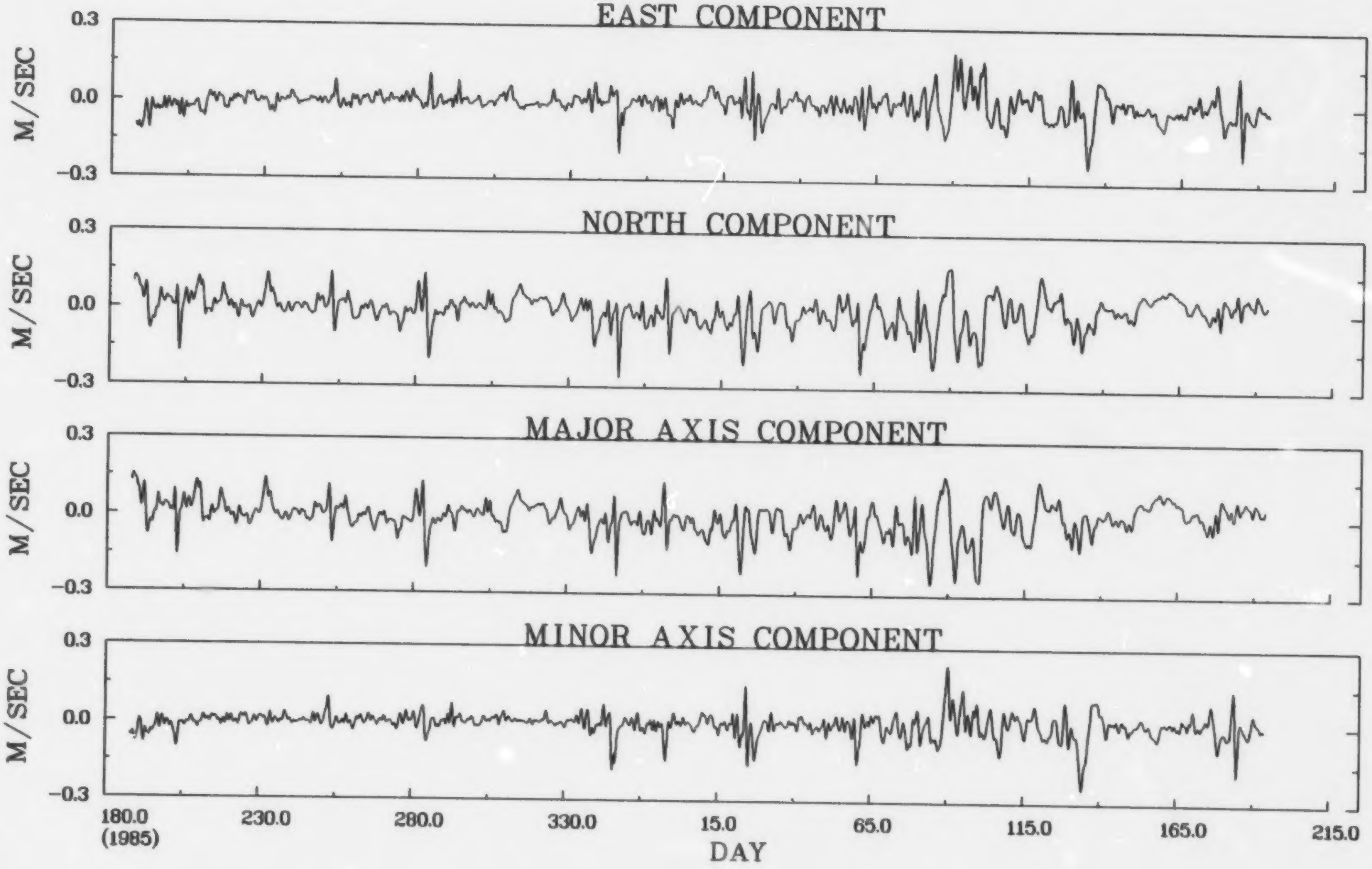
TOTAL NO. OF SAMPLES   9035
NO. OUT OF RANGE          0

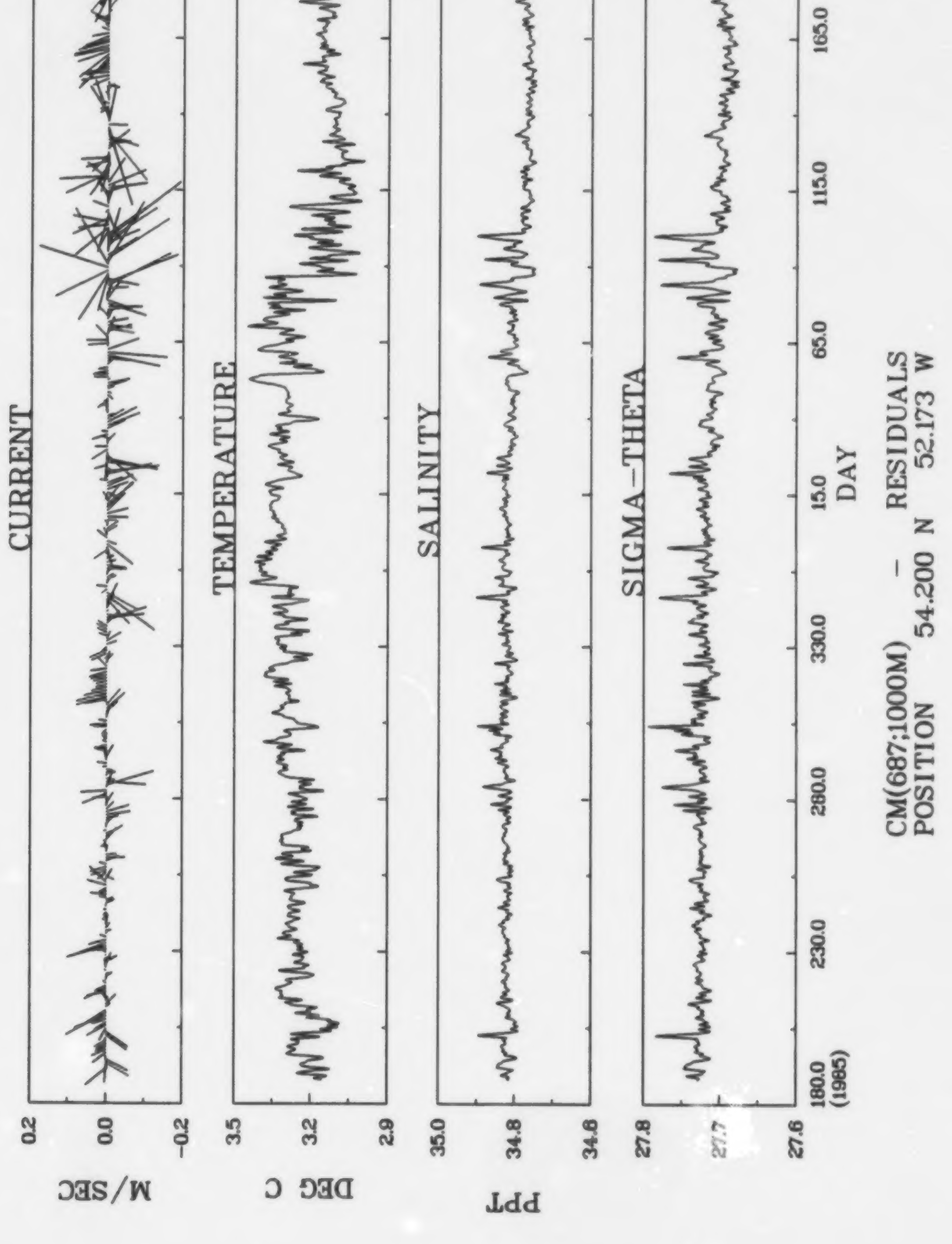

        BAND          NUMBER  PER
                              CENT

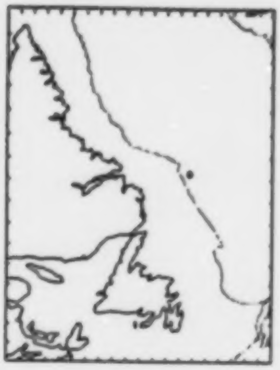

    ( 0.00,    .02)      31     .3 •
    (  .02,    .04)     139    1.5 •••••
    (  .04,    .06)     413    4.6 ••••••••••••••
    (  .06,    .08)     723    8.0 ••••••••••••••••••••••••
    (  .08,    .10)    1147   12.7 ••••••••••••••••••••••••••••••••••••••
    (  .10,    .12)    1444   16.0 ••••••••••••••••••••••••••••••••••••••••••••••••
    (  .12,    .14)    1399   15.5 ••••••••••••••••••••••••••••••••••••••••••••••
    (  .14,    .16)    1171   13.0 •••••••••••••••••••••••••••••••••••••••
    (  .16,    .18)     810    9.0 •••••••••••••••••••••••••••
    (  .18,    .20)     578    6.4 •••••••••••••••••••
    (  .20,    .22)     372    4.1 ••••••••••••
    (  .22,    .24)     239    2.6 ••••••••
    (  .24,    .26)     167    1.8 ••••••
    (  .26,    .28)     104    1.2 •••
    (  .28,    .30)      79     .9 •••
    (  .30,    .32)      59     .7 ••
    (  .32,    .34)      52     .6 ••
    (  .34,    .36)      42     .5 •
    (  .36,    .38)      28     .3 •
    (  .38,    .40)      19     .2 •
    (  .40,    .42)       8     .1
    (  .42,    .44)       6     .1
    (  .44,    .46)       3     .0
    (  .46,    .48)       1     .0
    (  .48,    .50)       1     .0
```



CM(687;1000M) - RESIDUALS
POSITION 54.200 N 52.173 W




CURRENT
M/SEC
0.2
0.0
-0.2
TEMPERATURE
DEG C
3.5
3.2
2.9
SALINITY
PPT
35.0
34.8
34.8
SIGMA-THETA
27.8
27.7
27.6
180.0
(1985)
230.0
280.0
330.0
15.0
65.0
115.0
165.0
215.0
DAY
CM(687;1000M) - RESIDUALS
POSITION 54.200 N 52.173 W



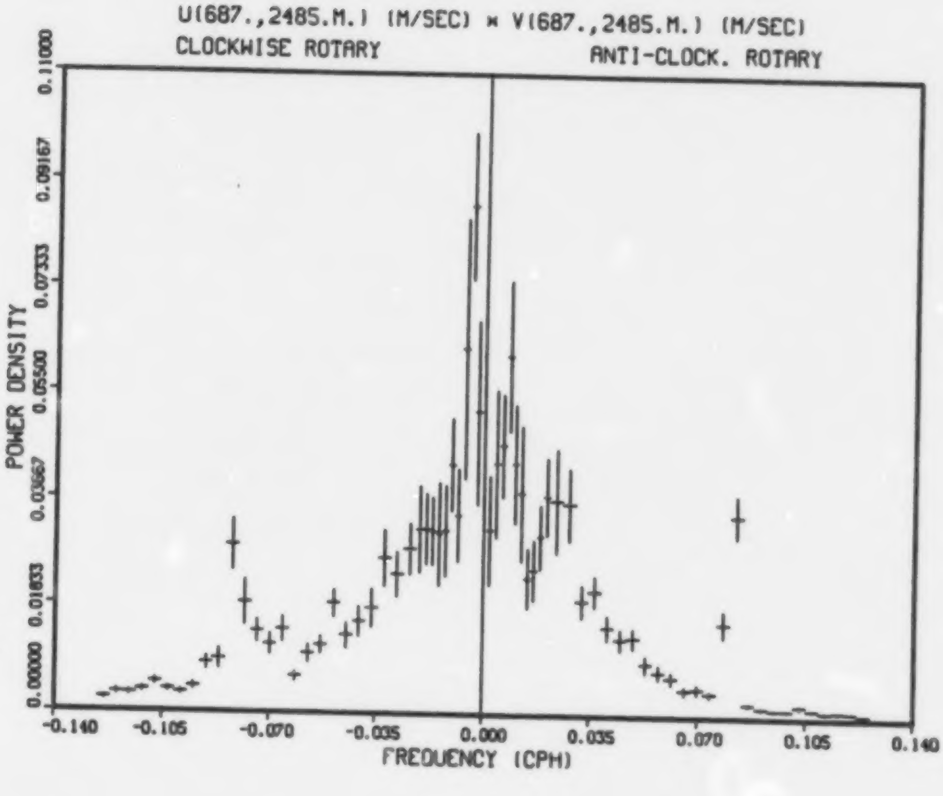
CM(687;2485M) - RESIDUAL STATISTICS

POSITION	54.200 N 52.173 W
BOTTOM DEPTH	2501.0 M
DURATION	200.3 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	2.24	2.85	2.64	.09
SALINITY	PPT	*********	*********	*********	*********
SIGMA-THETA	KG/M**3	*********	*********	*********	*********
N-S COMPONENT	CM/S	-20.38	5.17	-7.14	3.53
E-W COMPONENT	CM/S	-7.36	18.00	4.83	3.24
MAJOR AXIS	CM/S	-20.81	4.51	-8.51	3.61
MINOR AXIS	CM/S	-7.71	14.85	1.35	3.16

MAJOR AXIS ORIENTATION 334.91 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



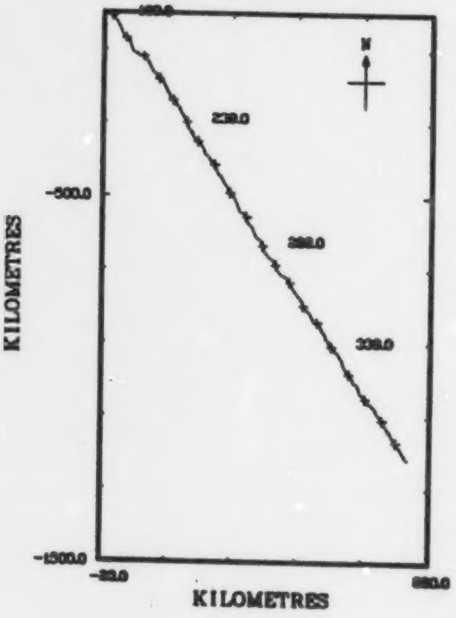
```
HISTOGRAM OF CURRENT SPEED AT (687;2485M)          TIDAL RESIDUALS (M/SEC)
 HAMILTON BANK
 CRUISE    85018.   STATION      687.    LAT   54.1997    LONG   52.1727
 INSTRUMENT 4603          BOTTOM DEPTH 2501.0 METRES
 SAMPLED EACH     3600. SECS      START TIME   1:59:55 Z    4/ 7/  85

TOTAL NO. OF SAMPLES   4865
NO. OUT OF RANGE          0

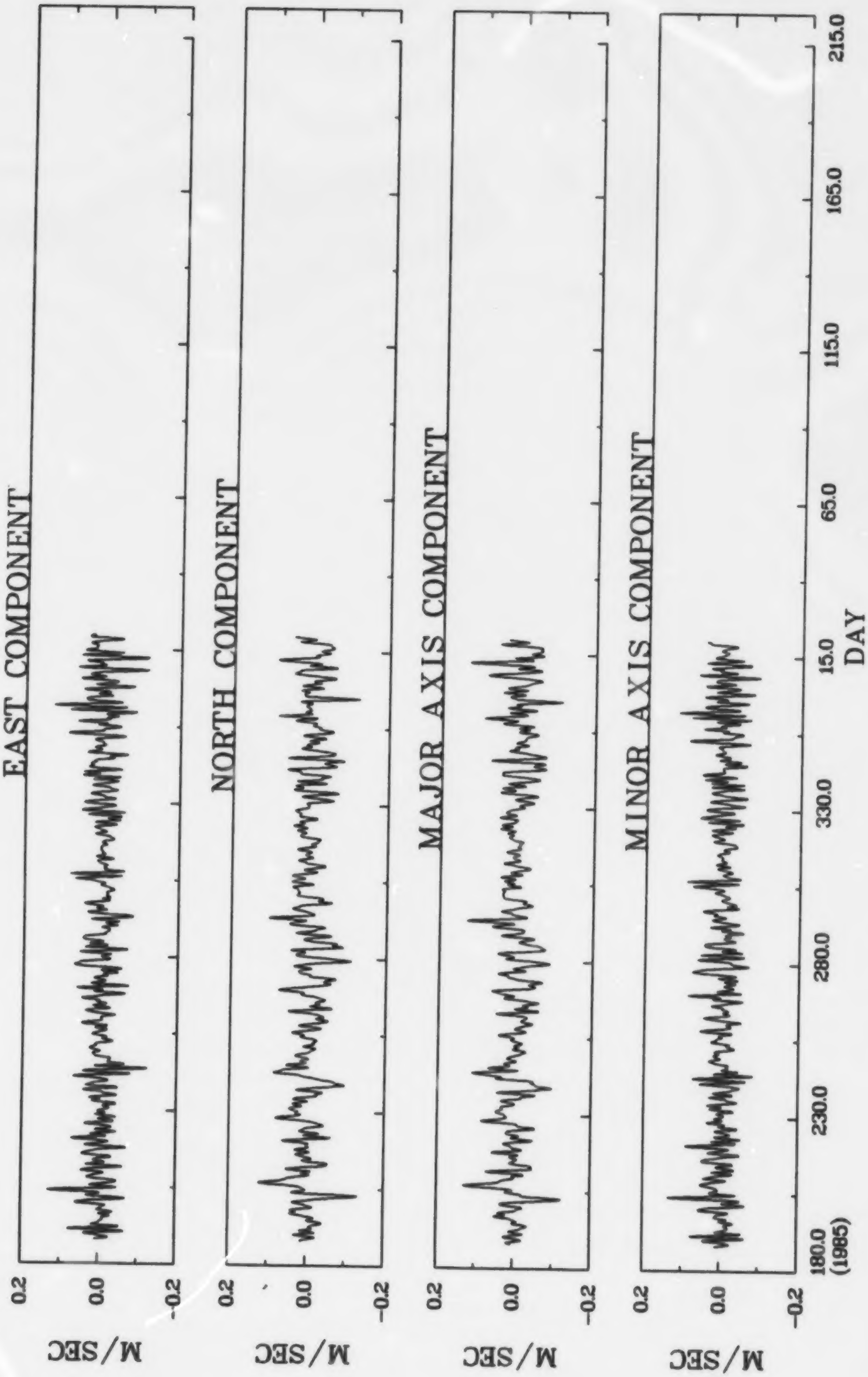

        BAND          NUMBER  PER
                              CENT

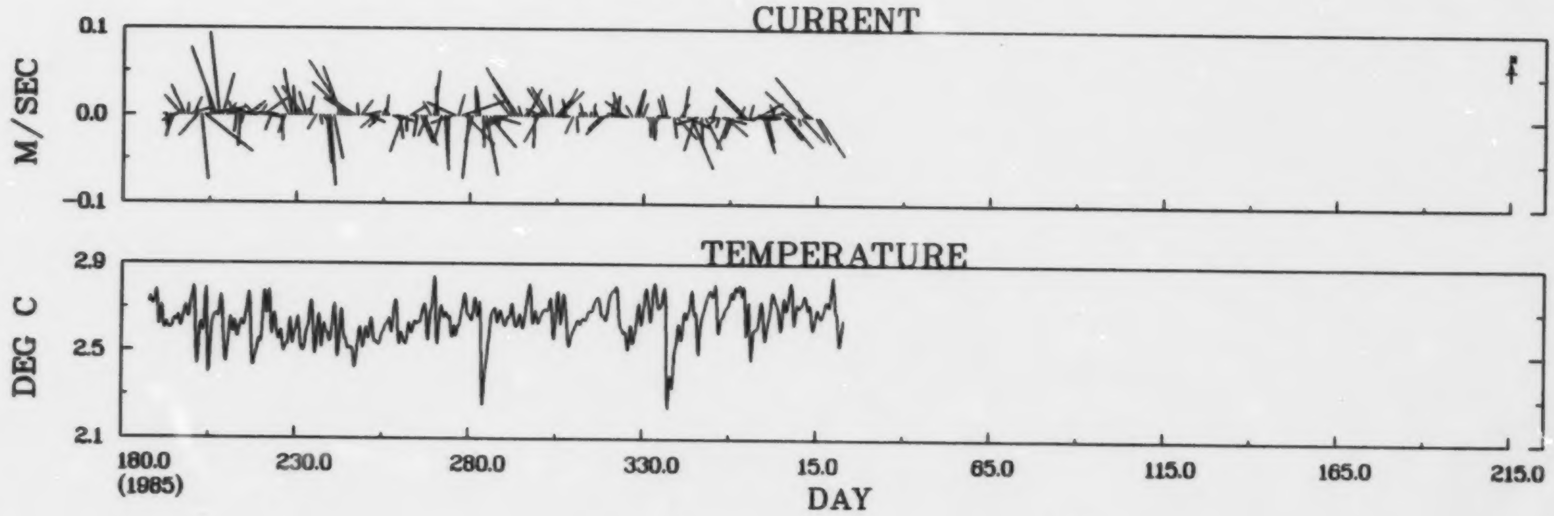

    ( 0.00,    .02)     30     .6 *
    (  .02,    .04)    190    3.9 *********
    (  .04,    .06)    485   10.0 ***********************
    (  .06,    .08)    854   17.6 ****************************************
    (  .08,    .10)   1012   20.8 ***********************************************
    (  .10,    .12)    893   18.4 ******************************************
    (  .12,    .14)    665   13.7 *******************************
    (  .14,    .16)    386    7.9 ******************
    (  .16,    .18)    178    3.7 ********
    (  .18,    .20)     97    2.0 ****
    (  .20,    .22)     36     .7 **
    (  .22,    .24)     22     .5 *
    (  .24,    .26)     13     .3 *
    (  .26,    .28)      4     .1
```

STN. 687, 2485 M.



CM(677:2485M) — RESIDUALS
POSITION 54.200 N 52.173 W

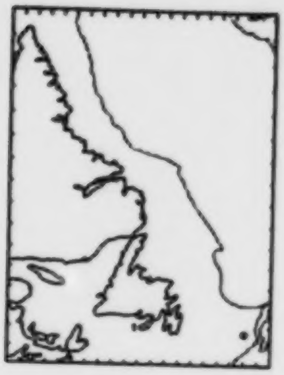




CM(687;2485M) – RESIDUALS
POSITION 54.200 N 52.173 W

CM(WJ49: 14M) - RESIDUAL STATISTICS

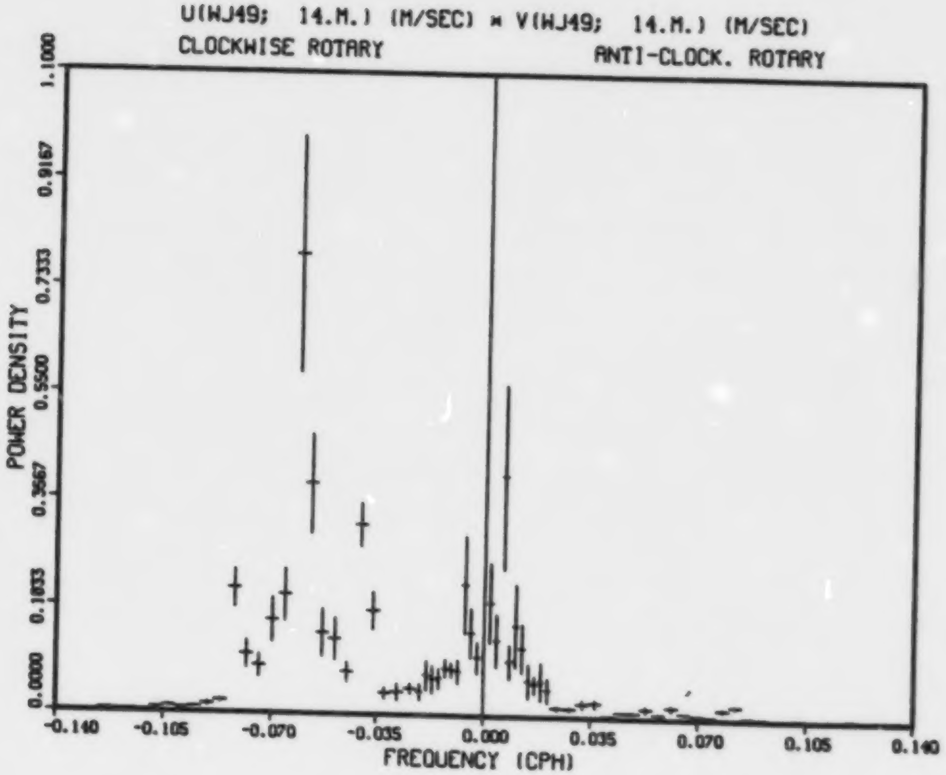
POSITION	46.809 N 48.108 W
BOTTOM DEPTH	120.0 M
DURATION	95.3 DAYS



		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	1.67	10.97	7.18	2.89
SALINITY	PPT	31.04	32.64	31.76	.44
SIGMA-THETA	KG/M**3	23.80	26.05	24.80	.70
N-S COMPONENT	CM/S	-22.25	21.21	-5.02	6.85
E-W COMPONENT	CM/S	-19.72	11.91	-.39	4.83
MAJOR AXIS	CM/S	-21.78	21.81	-4.85	7.12
MINOR AXIS	CM/S	-15.43	13.71	1.36	4.43

MAJOR AXIS ORIENTATION 20.13 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



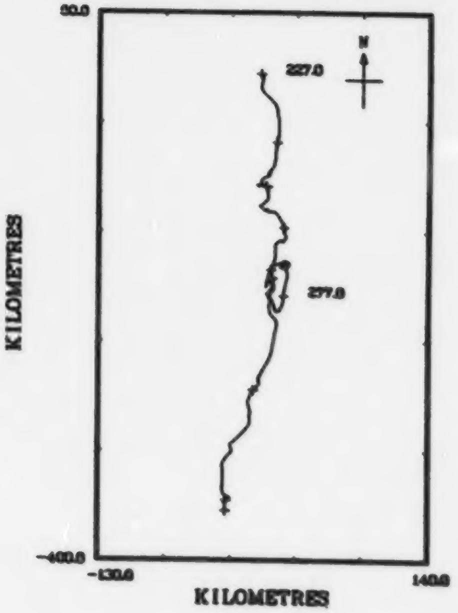
```
HISTOGRAM OF CURRENT SPEED AT (WJ49;  14M)         TIDAL RESIDUALS (M/SEC)
 GRAND BANK
 CRUISE    85923.   STATION         1.    LAT   46.8087    LONG   48.1076
 INSTRUMENT                 BOTTOM DEPTH  120.0 METRES
 SAMPLED EACH     1200. SECS      START TIME  22:51:00 Z   10/ 8/1985

TOTAL NO. OF SAMPLES   6261
NO. OUT OF RANGE          0

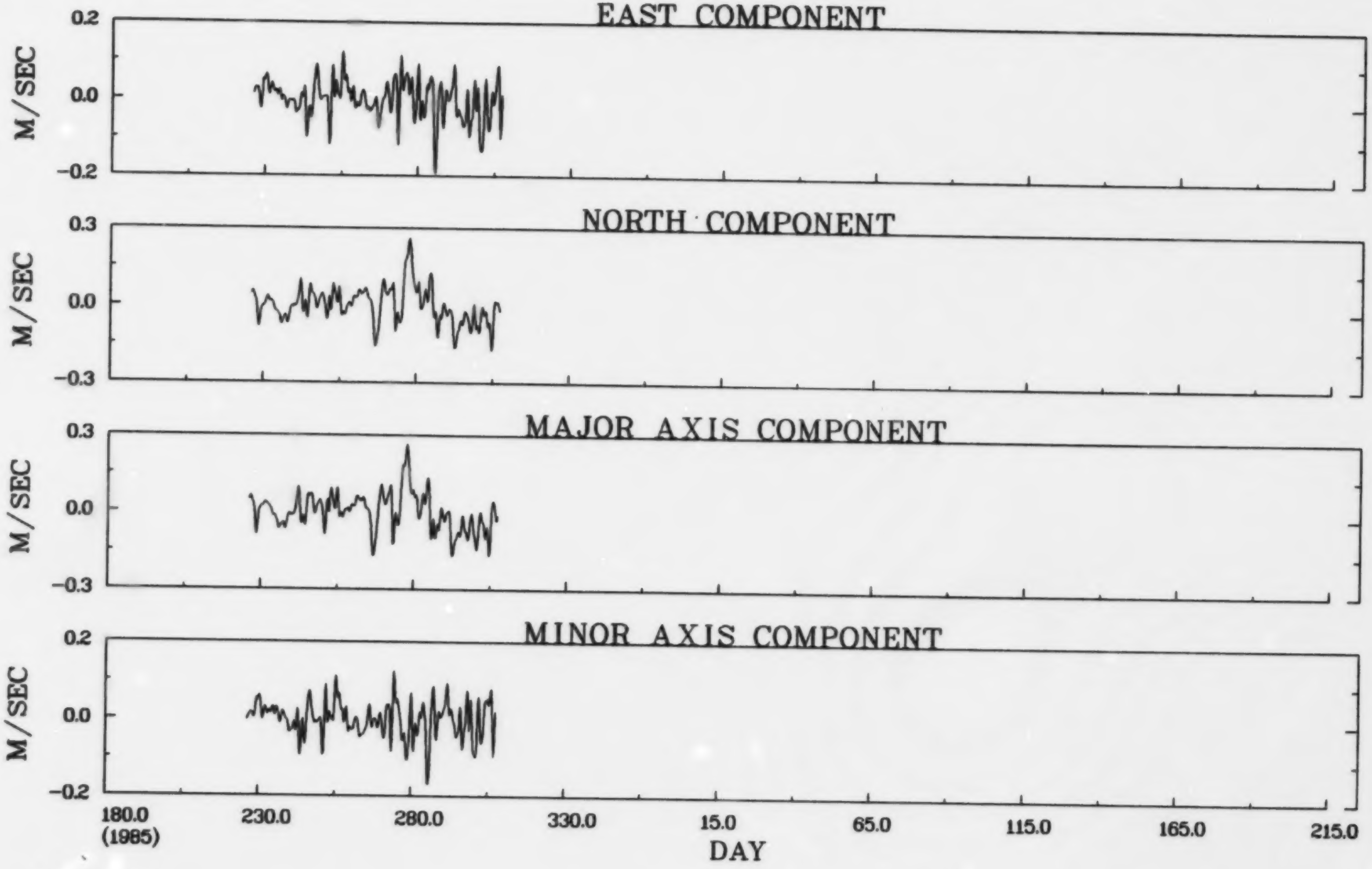

       BAND         NUMBER  PER
                            CENT

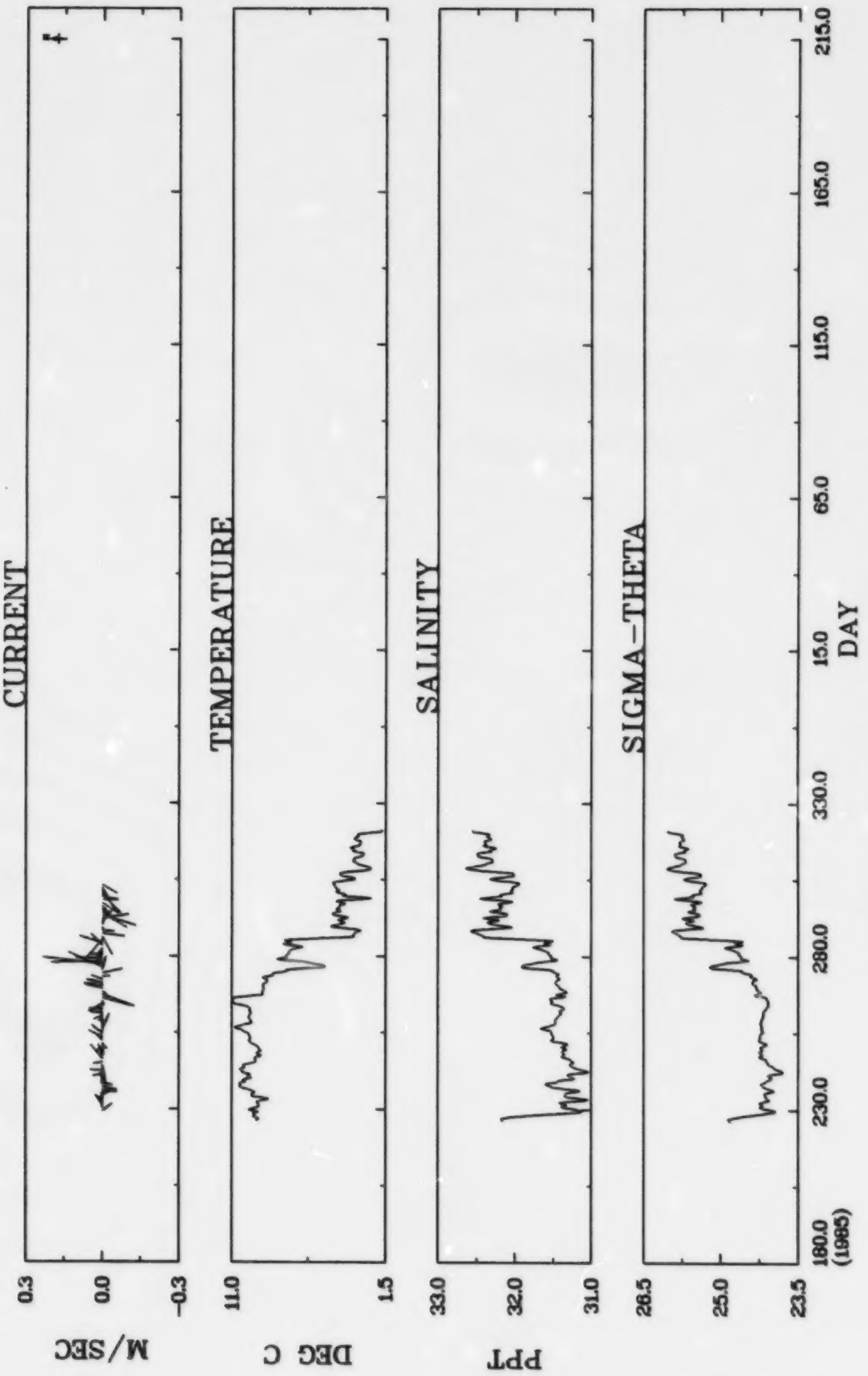

    ( 0.00,   .02)     29     .5 **
    (  .02,   .04)    173    2.8 **********
    (  .04,   .06)    427    6.8 ************************
    (  .06,   .08)    691   11.0 **************************************
    (  .08,   .10)    849   13.6 ***********************************************
    (  .10,   .12)    836   13.4 **********************************************
    (  .12,   .14)    808   12.9 *********************************************
    (  .14,   .16)    679   10.8 **************************************
    (  .16,   .18)    479    7.7 ***************************
    (  .18,   .20)    357    5.7 ********************
    (  .20,   .22)    304    4.9 *****************
    (  .22,   .24)    202    3.2 ***********
    (  .24,   .26)    118    1.9 *******
    (  .26,   .28)     88    1.4 *****
    (  .28,   .30)     70    1.1 ****
    (  .30,   .32)     48     .8 ***
    (  .32,   .34)     38     .6 **
    (  .34,   .36)     25     .4 *
    (  .36,   .38)     20     .3 *
    (  .38,   .40)     12     .2 *
    (  .40,   .42)      4     .1
    (  .42,   .44)      2     .0
    (  .44,   .46)      1     .0
    (  .46,   .48)      1     .0
```

STN. WJ49,   14 M.



CM(WJ49; 14M) - RESIDUALS
POSITION 46.809 N 48.108 W





CM(WJ49; 14M) - RESIDUALS
POSITION 46.809 N 48.108 W

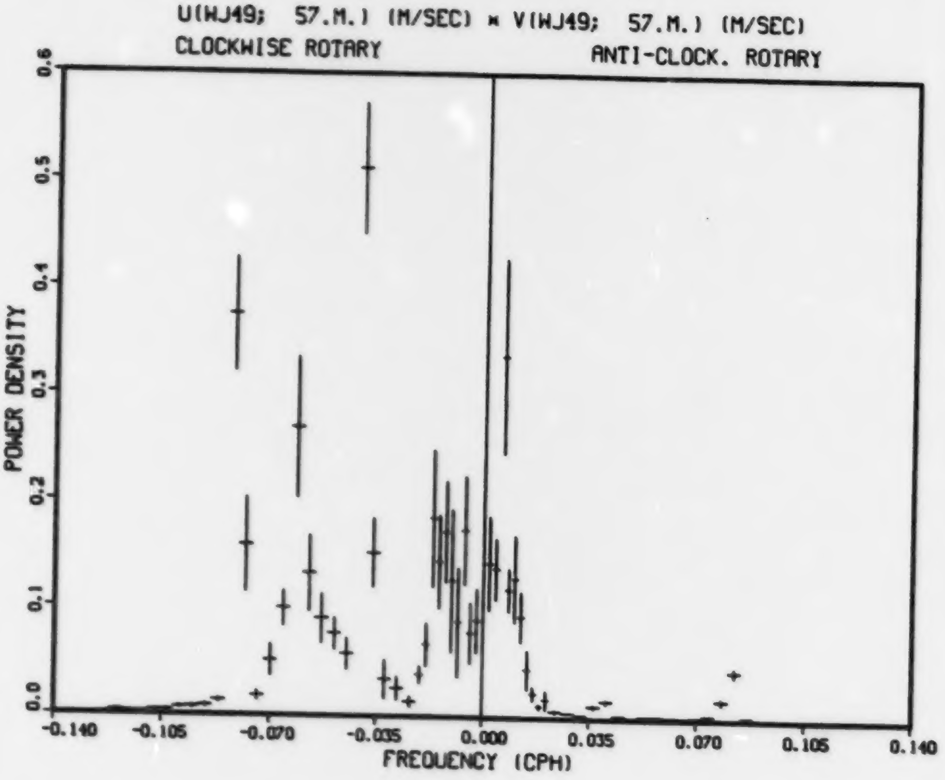
CM(WJ49: 57M) - RESIDUAL STATISTICS

POSITION	46.809 N 48.108 W
BOTTOM DEPTH	120.0 M
DURATION	95.3 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	-1.72	2.30	-.95	.63
SALINITY	PPT	32.86	33.24	33.07	.07
SIGMA-THETA	KG/M**3	26.23	26.72	26.58	.07
N-S COMPONENT	CM/S	-20.69	13.47	-2.24	6.07
E-W COMPONENT	CM/S	-11.71	14.44	.63	4.02
MAJOR AXIS	CM/S	-20.88	13.25	-2.11	6.11
MINOR AXIS	CM/S	-10.99	13.73	.99	3.95

MAJOR AXIS ORIENTATION 9.37 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



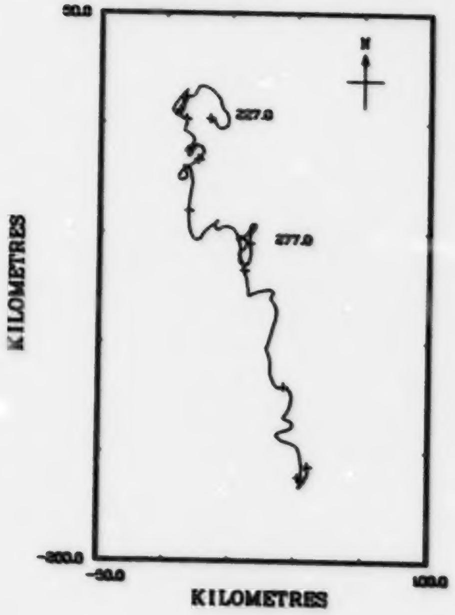
```
HISTOGRAM OF CURRENT SPEED AT (WJ49;  57M)          TIDAL RESIDUALS (M/SEC)
 GRAND BANK
 CRUISE    85923.   STATION        1.    LAT   46.8087    LONG   48.1076
 INSTRUMENT                 BOTTOM DEPTH  120.0 METRES
 SAMPLED EACH     1200. SECS      START TIME  22:54:60 Z   10/ 8/1985

TOTAL NO. OF SAMPLES   6261
NO. OUT OF RANGE          0

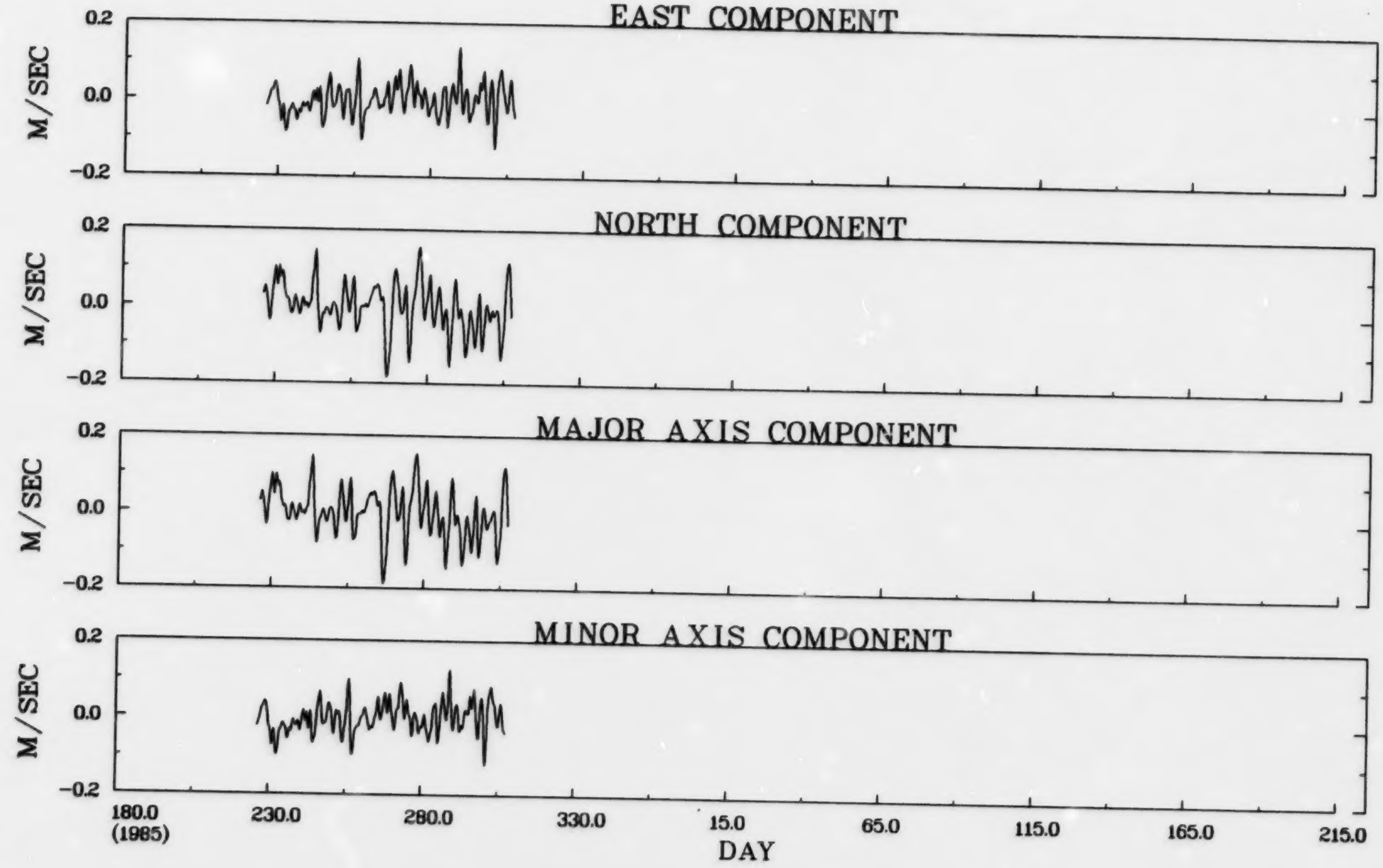

       BAND          NUMBER  PER
                             CENT

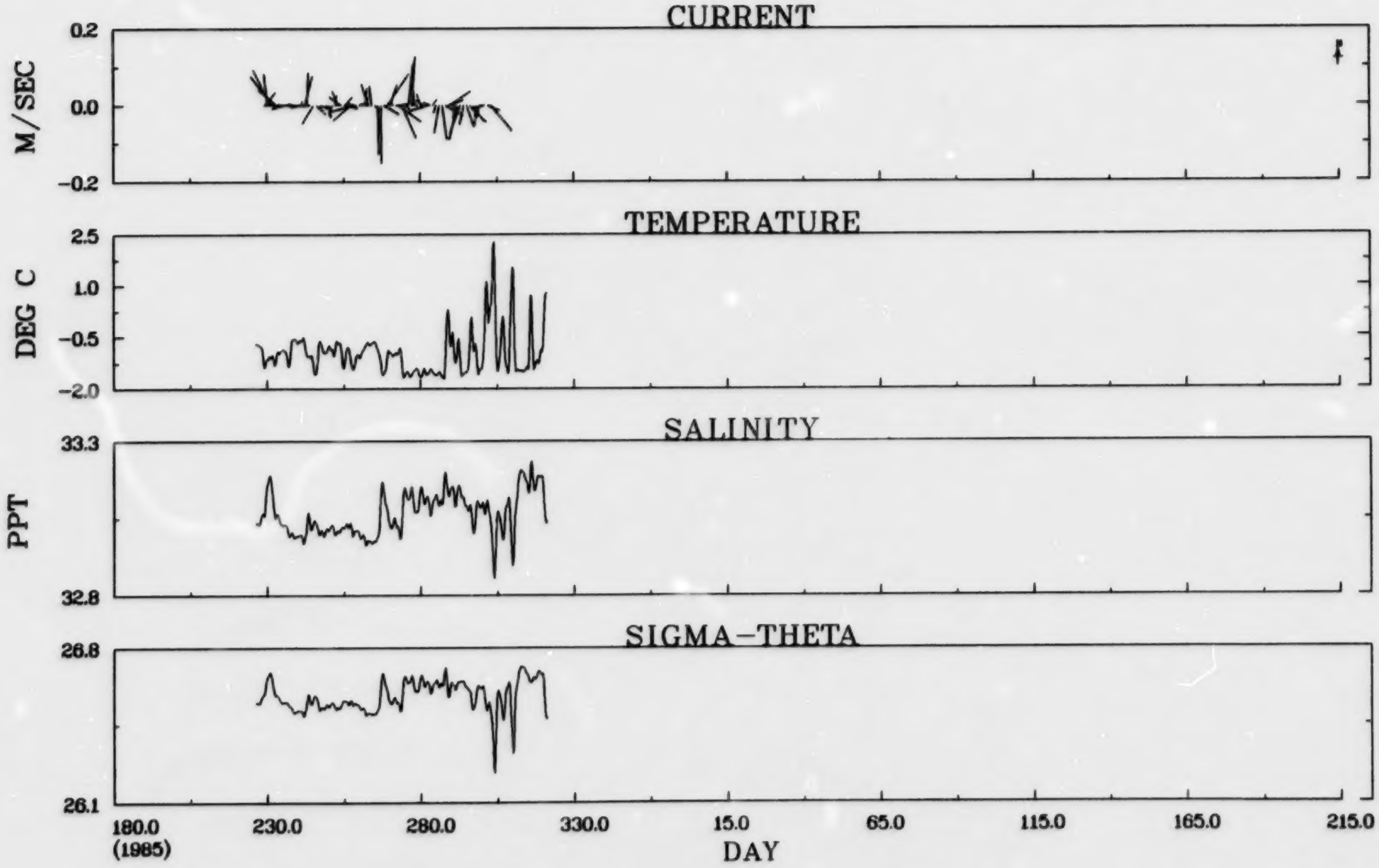
    ( 0.00,   .02)    285    4.6 *************
    (  .02,   .04)    696   11.1 ********************************
    (  .04,   .06)    879   14.0 ****************************************
    (  .06,   .08)    998   15.9 **********************************************
    (  .08,   .10)   1072   17.1 *************************************************
    (  .10,   .12)    796   12.7 ************************************
    (  .12,   .14)    512    8.2 ***********************
    (  .14,   .16)    445    7.1 ********************
    (  .16,   .18)    280    4.5 *************
    (  .18,   .20)    168    2.7 ********
    (  .20,   .22)     60    1.0 ***
    (  .22,   .24)     48     .8 **
    (  .24,   .26)     20     .3 *
    (  .26,   .28)      2     .0
```

STN. WJ49,   57 M.



CM(WJ49; 57M) - RESIDUALS
POSITION 46.809 N 48.108 W





CM(WJ49; 57M) – RESIDUALS
POSITION 46.809 N 48.108 W

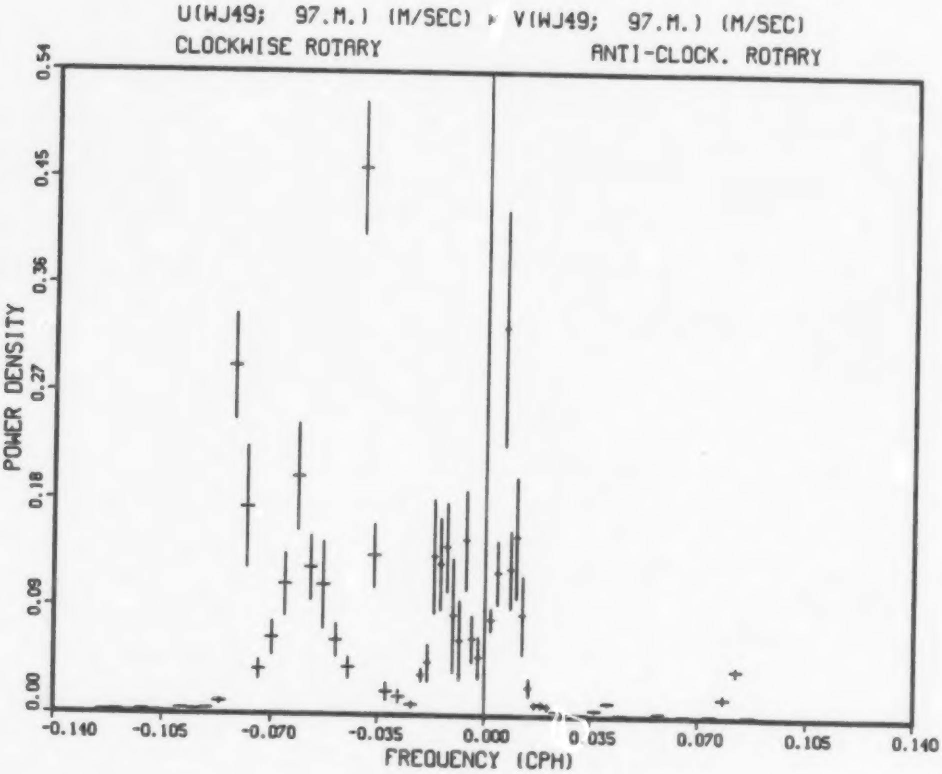
CM(WJ49; 97M) - RESIDUAL STATISTICS

POSITION	46.809 N 48.108 W
BOTTOM DEPTH	120.0 M
DURATION	95.3 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	-1.62	-1.15	-1.37	.12
SALINITY	PPT	33.04	33.37	33.17	.07
SIGMA-THETA	KG/M**3	26.58	26.84	26.68	.05
N-S COMPONENT	CM/S	-22.25	12.41	-1.96	5.50
E-W COMPONENT	CM/S	-8.02	9.10	.79	3.31
MAJOR AXIS	CM/S	-22.35	12.25	-1.80	5.55
MINOR AXIS	CM/S	-7.77	8.56	1.10	3.23

MAJOR AXIS ORIENTATION   9.27 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



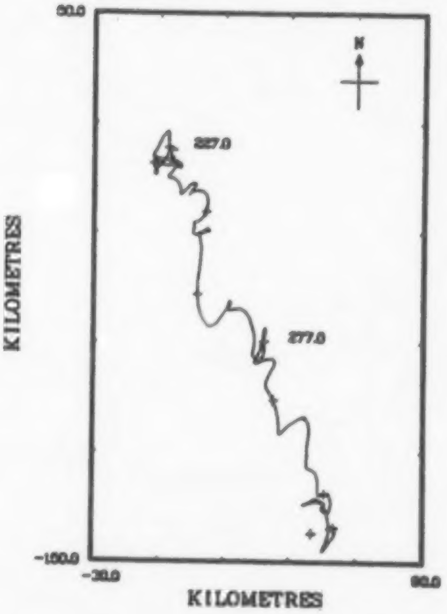
```
HISTOGRAM OF CURRENT SPEED AT (WJ49:  97M)          TIDAL RESIDUALS (M/SEC)
 GRAND BANK
 CRUISE    85923.   STATION        1.    LAT   46.8087    LONG   48.1076
 INSTRUMENT                BOTTOM DEPTH  120.0 METRES
 SAMPLED EACH      1200. SECS      START TIME  22:46:60 Z   10/ 8/1985

TOTAL NO. OF SAMPLES   6261
NO. OUT OF RANGE          0

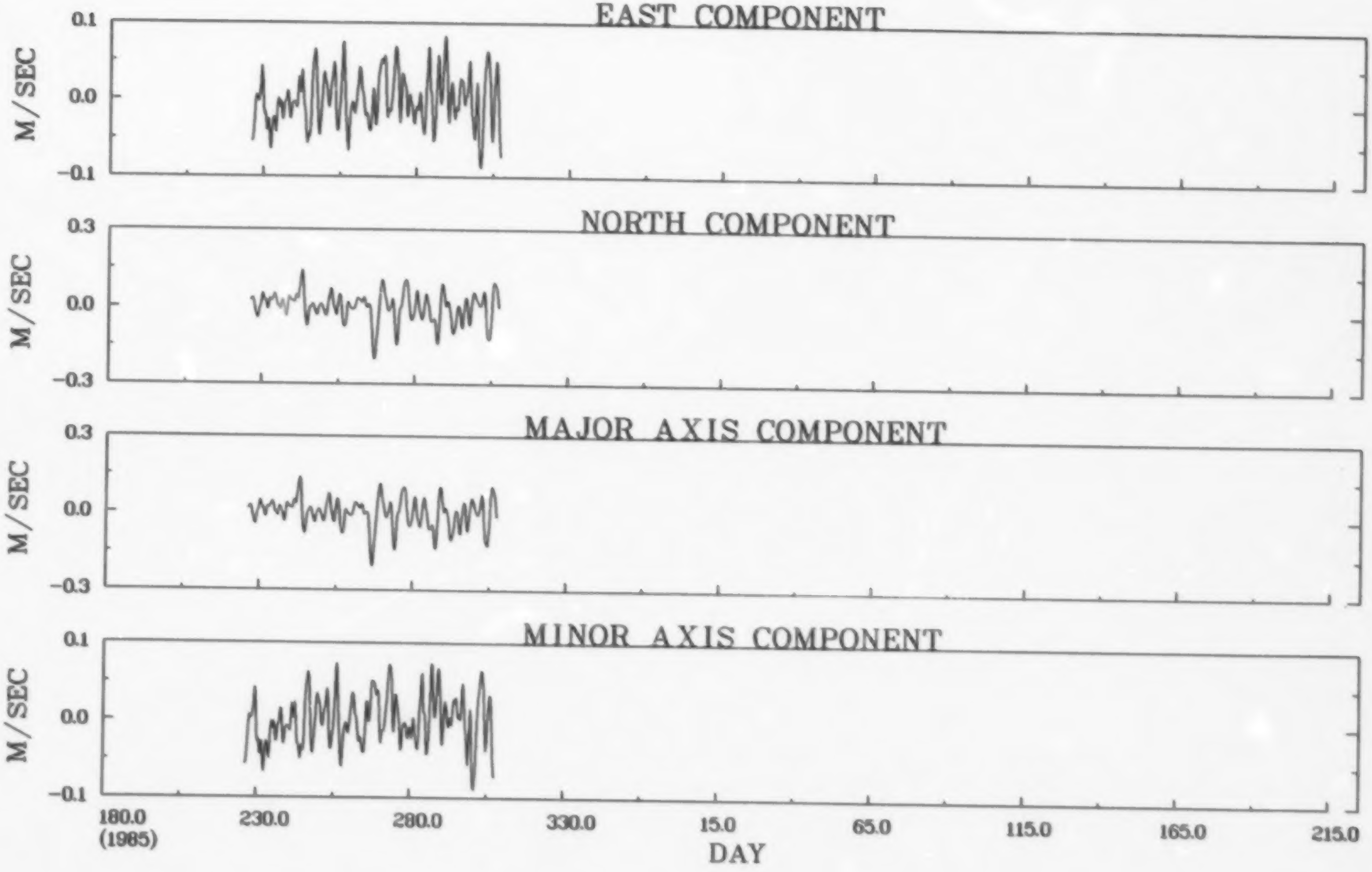

        BAND          NUMBER  PER
                              CENT

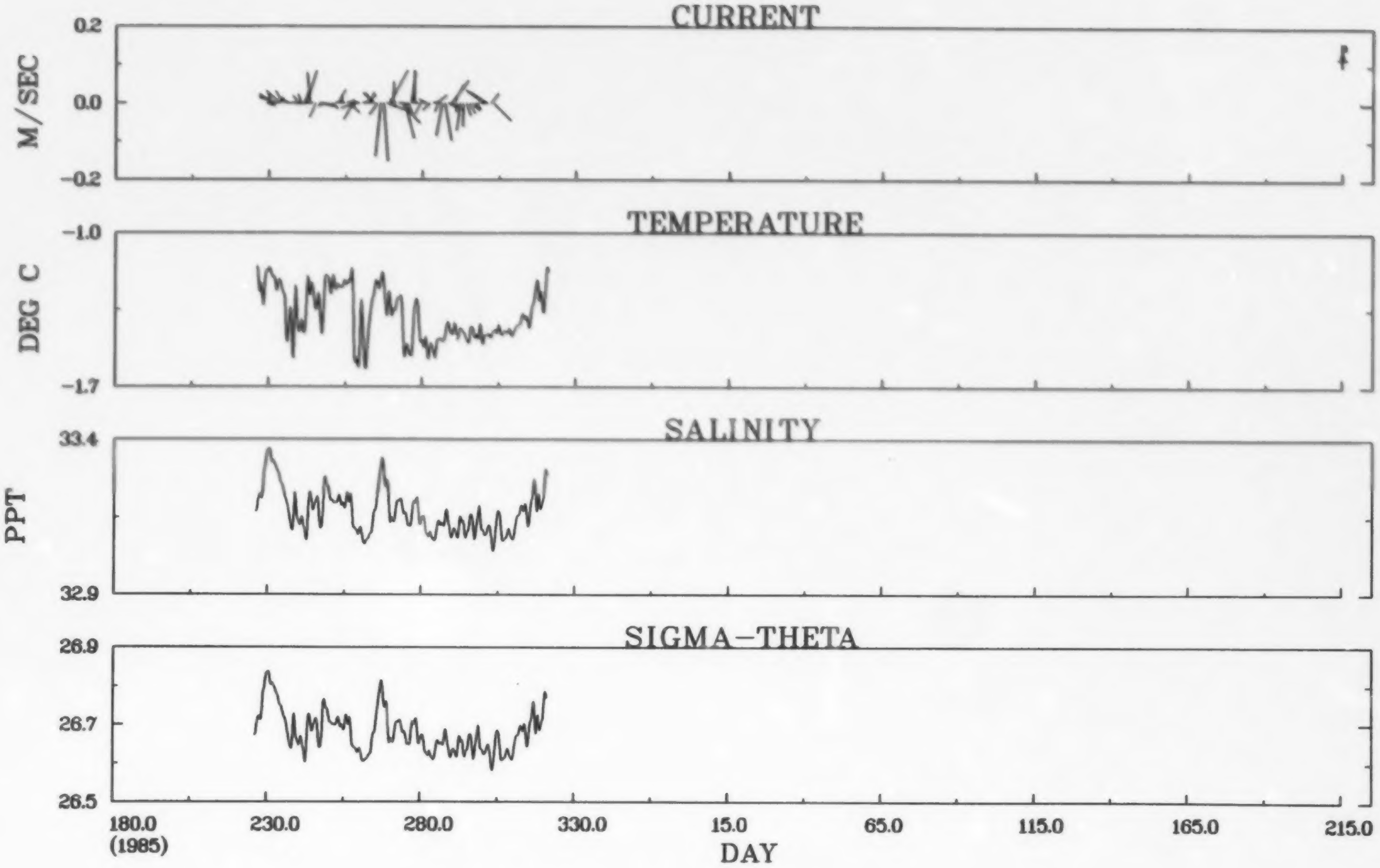

    ( 0.00,    .02)     289    4.6 ***********
    (  .02,    .04)     842   13.4 ********************************
    (  .04,    .06)    1225   19.6 ***********************************************
    (  .06,    .08)    1214   19.4 ***********************************************
    (  .08,    .10)     915   14.6 ***********************************
    (  .10,    .12)     620    9.9 ************************
    (  .12,    .14)     520    8.3 ********************
    (  .14,    .16)     293    4.7 ***********
    (  .16,    .18)     159    2.5 ******
    (  .18,    .20)      73    1.2 ***
    (  .20,    .22)      46     .7 **
    (  .22,    .24)      35     .6 *
    (  .24,    .26)      17     .3 *
    (  .26,    .28)      13     .2
```

STN.WJ49, 97 M.



CM(WJ49; 97M) – RESIDUALS
POSITION 46.809 N 48.108 W





CM(WJ49; 97M) – RESIDUALS
POSITION 46.809 N 48.108 W

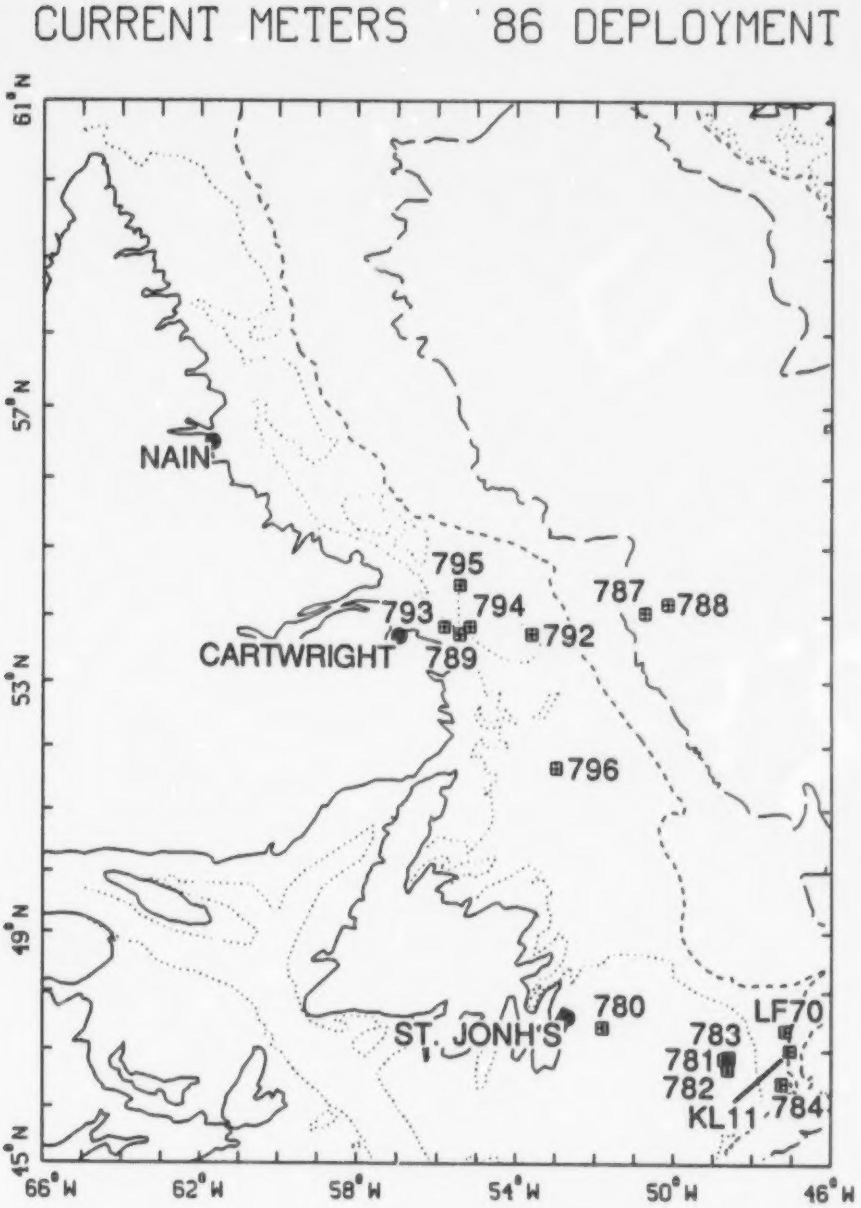

CURRENT METERS '86 DEPLOYMENT
61°N
57°N
53°N
49°N
45°N
66°W
62°W
58°W
54°W
50°W
46°W
NAIN
CARTWRIGHT
ST. JONH'S
795
793
794
789
792
787
788
796
780
783
781
782
LF70
KL11
784

Figure 22. Location map for current meter moorings during the 1986/87 field year. Isobaths are indicated by (·····) 200 m, (- - - -) 1000 m and (— —) 3000m.

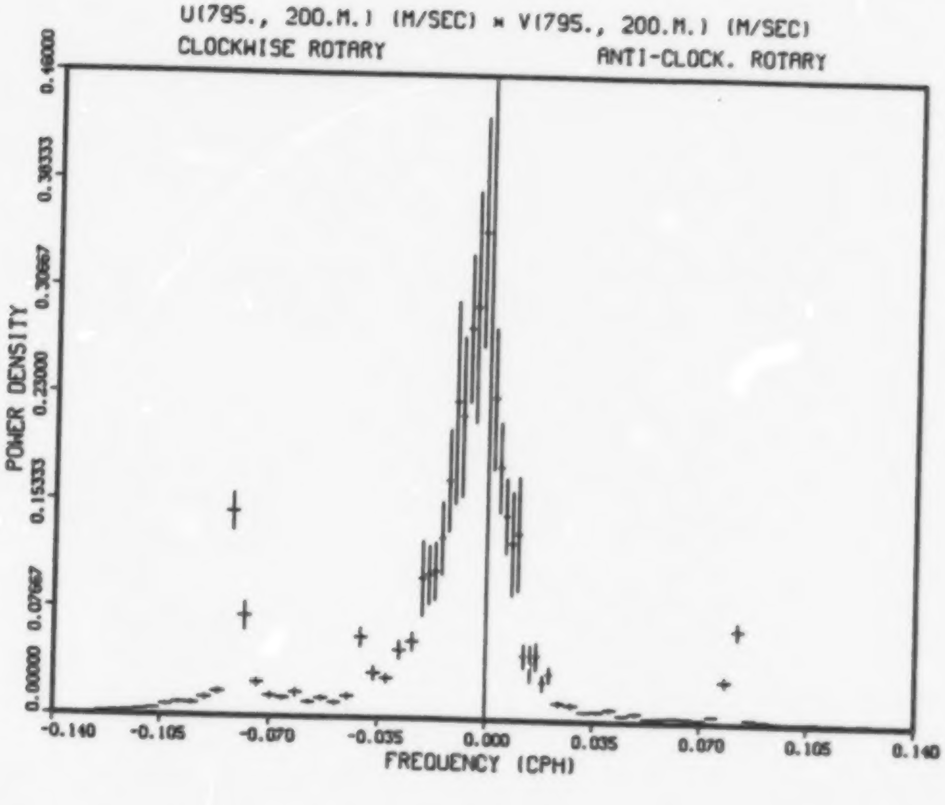
CM(795; 200M) - RESIDUAL STATISTICS

POSITION	54.461 N 55.439 W
BOTTOM DEPTH	200.0 M
DURATION	355.0 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	-1.43	2.52	.01	.72
SALINITY	PPT	33.18	34.65	33.71	.23
SIGMA-THETA	KG/M**3	26.63	27.65	27.06	.17
N-S COMPONENT	CM/S	-4.28	40.72	10.66	6.75
E-W COMPONENT	CM/S	-38.45	18.15	-2.00	7.24
MAJOR AXIS	CM/S	-49.49	5.05	-8.04	7.85
MINOR AXIS	CM/S	-35.00	8.63	-7.28	6.02

MAJOR AXIS ORIENTATION 127.20 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



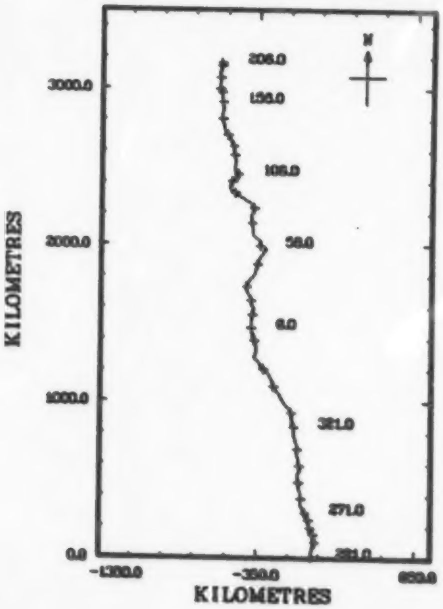
```
HISTOGRAM OF CURRENT SPEED AT (795; 200M)          TIDAL RESIDUALS (M/SEC)
 HAMILTON BANK
 CRUISE    86021.   STATION      795.    LAT   54.4605    LONG   55.4388
 INSTRUMENT 7133         BOTTOM DEPTH  200.0 METRES
 SAMPLED EACH     3600. SECS       START TIME   3:59:55 Z    5/ 8/1986

TOTAL NO. OF SAMPLES   8340
NO. OUT OF RANGE          0

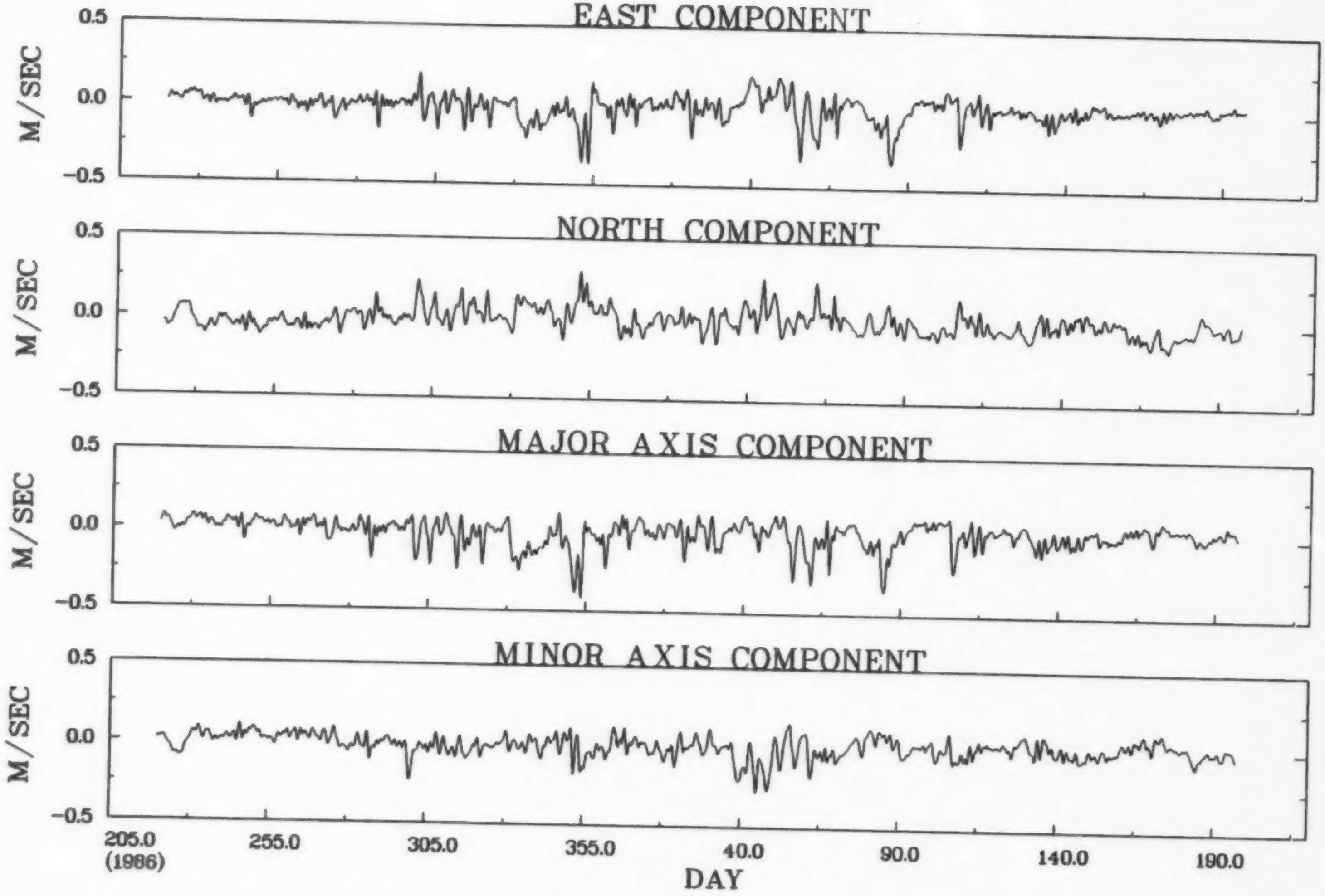
        BAND          NUMBER  PER
                              CENT

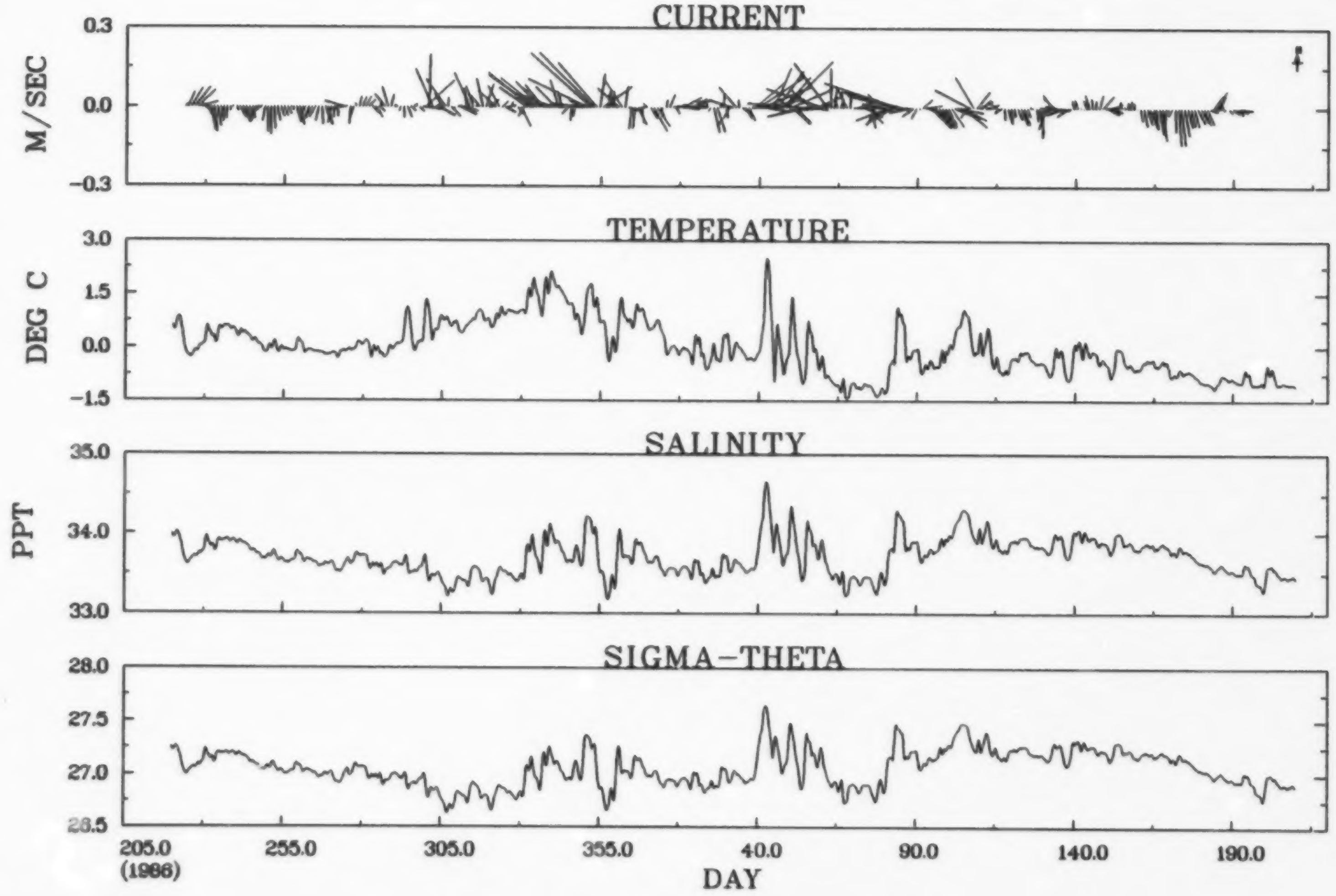
    ( 0.00,   .02)     128    1.5 ******
    (  .02,   .04)     504    6.0 ***********************
    (  .04,   .06)     878   10.5 ****************************************
    (  .06,   .08)    1038   12.4 ***********************************************
    (  .08,   .10)    1020   12.2 **********************************************
    (  .10,   .12)     936   11.2 *******************************************
    (  .12,   .14)     781    9.4 ***********************************
    (  .14,   .16)     714    8.6 ********************************
    (  .16,   .18)     601    7.2 ***************************
    (  .18,   .20)     411    4.9 *******************
    (  .20,   .22)     317    3.8 **************
    (  .22,   .24)     231    2.8 **********
    (  .24,   .26)     155    1.9 *******
    (  .26,   .28)     145    1.7 *******
    (  .28,   .30)     109    1.3 *****
    (  .30,   .32)      87    1.0 ****
    (  .32,   .34)      77     .9 ***
    (  .34,   .36)      47     .6 **
    (  .36,   .38)      37     .4 **
    (  .38,   .40)      34     .4 **
    (  .40,   .42)      29     .3 *
    (  .42,   .44)      19     .2 *
    (  .44,   .46)      15     .2 *
    (  .46,   .48)       9     .1
    (  .48,   .50)       4     .0
    (  .50,   .52)       3     .0
    (  .52,   .54)       0    0.0
    (  .54,   .56)       3     .0
    (  .56,   .58)       2     .0
    (  .58,   .60)       5     .1
    (  .60,   .62)       1     .0
```

STN. 795,   200 M.



CM(795; 200M) – RESIDUALS
POSITION 54.461 N 55.439 W

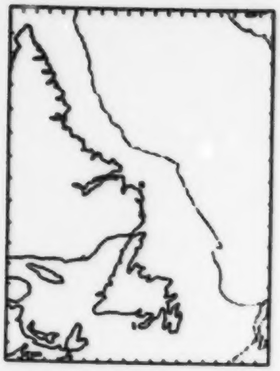




CM(795; 200M) - RESIDUALS
POSITION 54.461 N 55.439 W

CM(793: 80M) - RESIDUAL STATISTICS

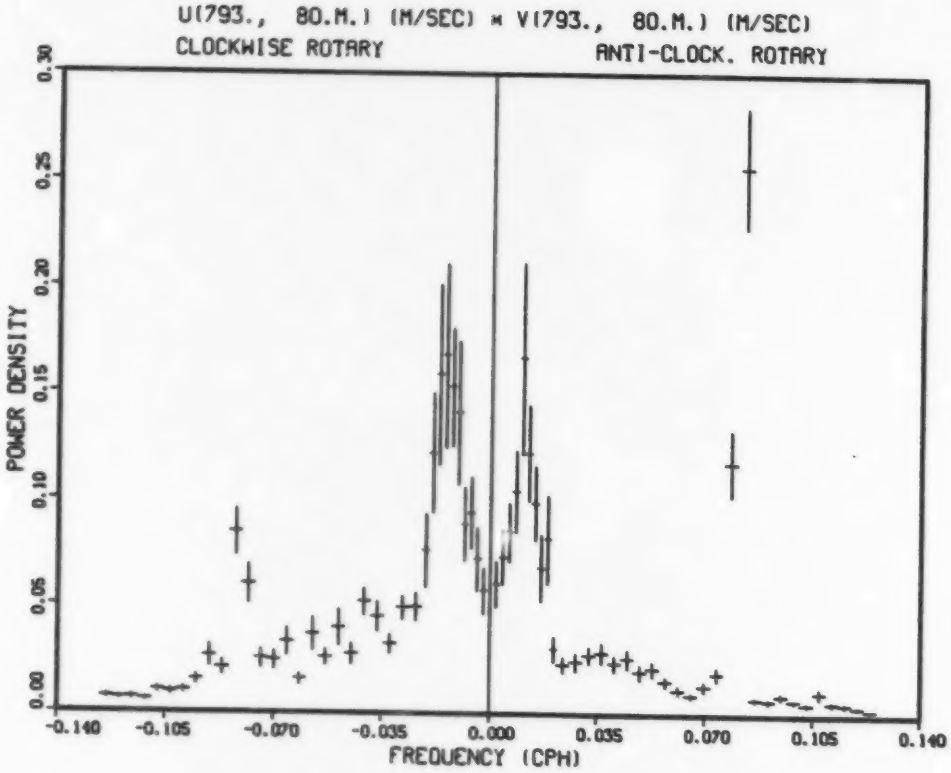
POSITION	53.842 N 55.832 W
BOTTOM DEPTH	80.0 M
DURATION	322.0 DAYS



		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	-1.85	2.68	-1.00	1.14
SALINITY	PPT	31.85	33.15	32.76	.24
SIGMA-THETA	KG/M**3	25.55	26.68	26.33	.23
N-S COMPONENT	CM/S	-18.31	17.99	-.76	3.95
E-W COMPONENT	CM/S	-24.65	23.72	-.72	6.02
MAJOR AXIS	CM/S	-25.33	22.56	-.43	6.26
MINOR AXIS	CM/S	-13.26	17.75	.95	3.57

MAJOR AXIS ORIENTATION 109.21 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



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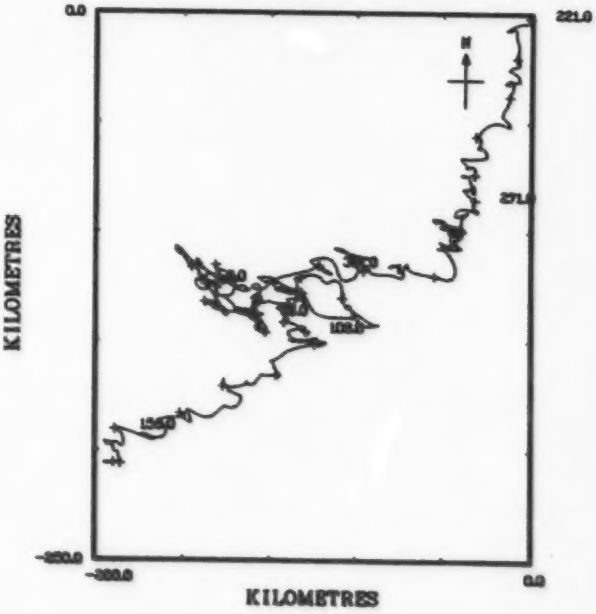
HISTOGRAM OF CURRENT SPEED AT (793;  80M)           TIDAL RESIDUALS (M/SEC)
 HAMILTON BANK
 CRUISE    86021.   STATION      793.    LAT   53.8422    LONG    55.8323
 INSTRUMENT 5575          BOTTOM DEPTH   80.0 METRES
 SAMPLED EACH      3600. SECS      START TIME  17:59:55 Z    4/ 8/1986

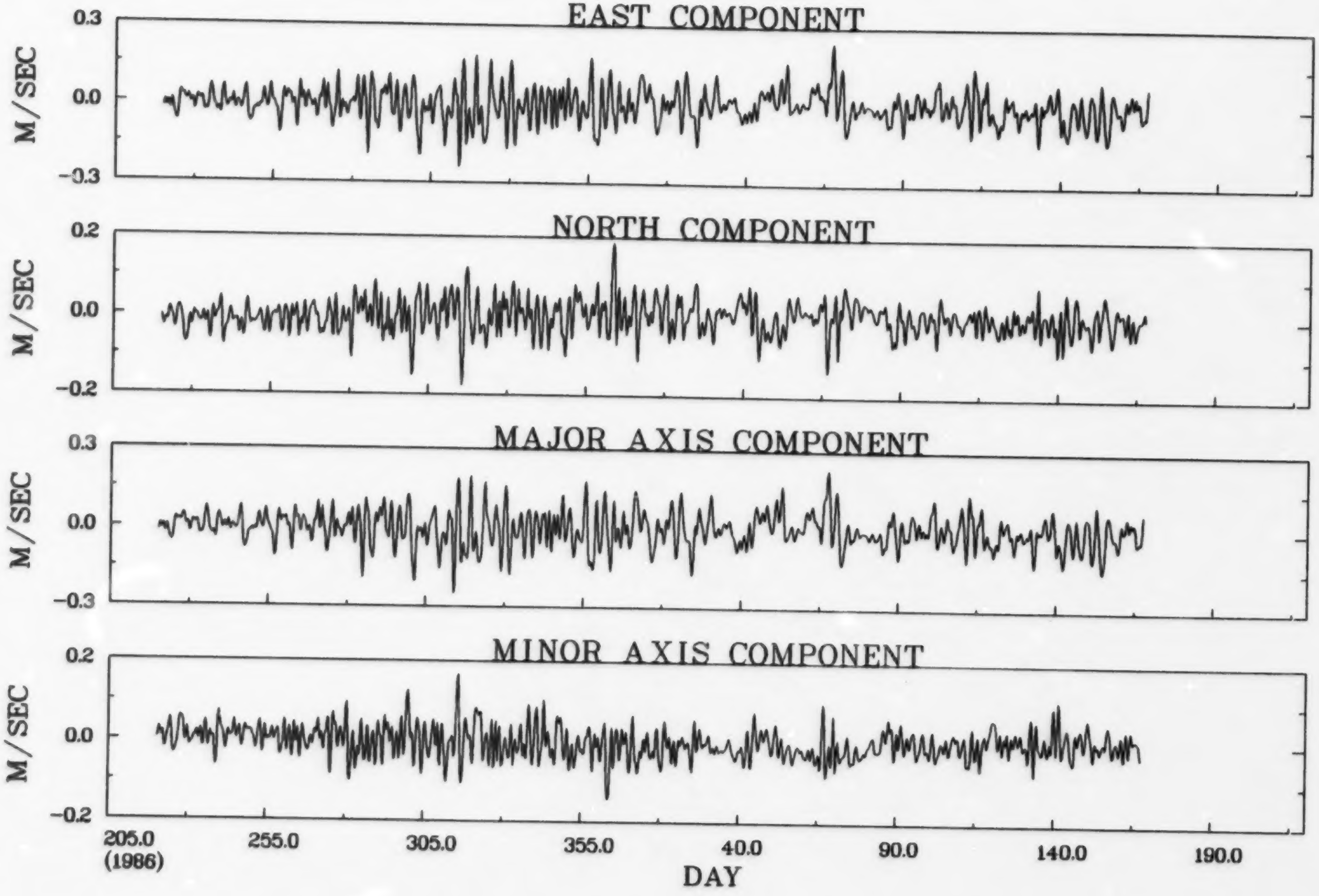
TOTAL NO. OF SAMPLES   7645
NO. OUT OF RANGE          0

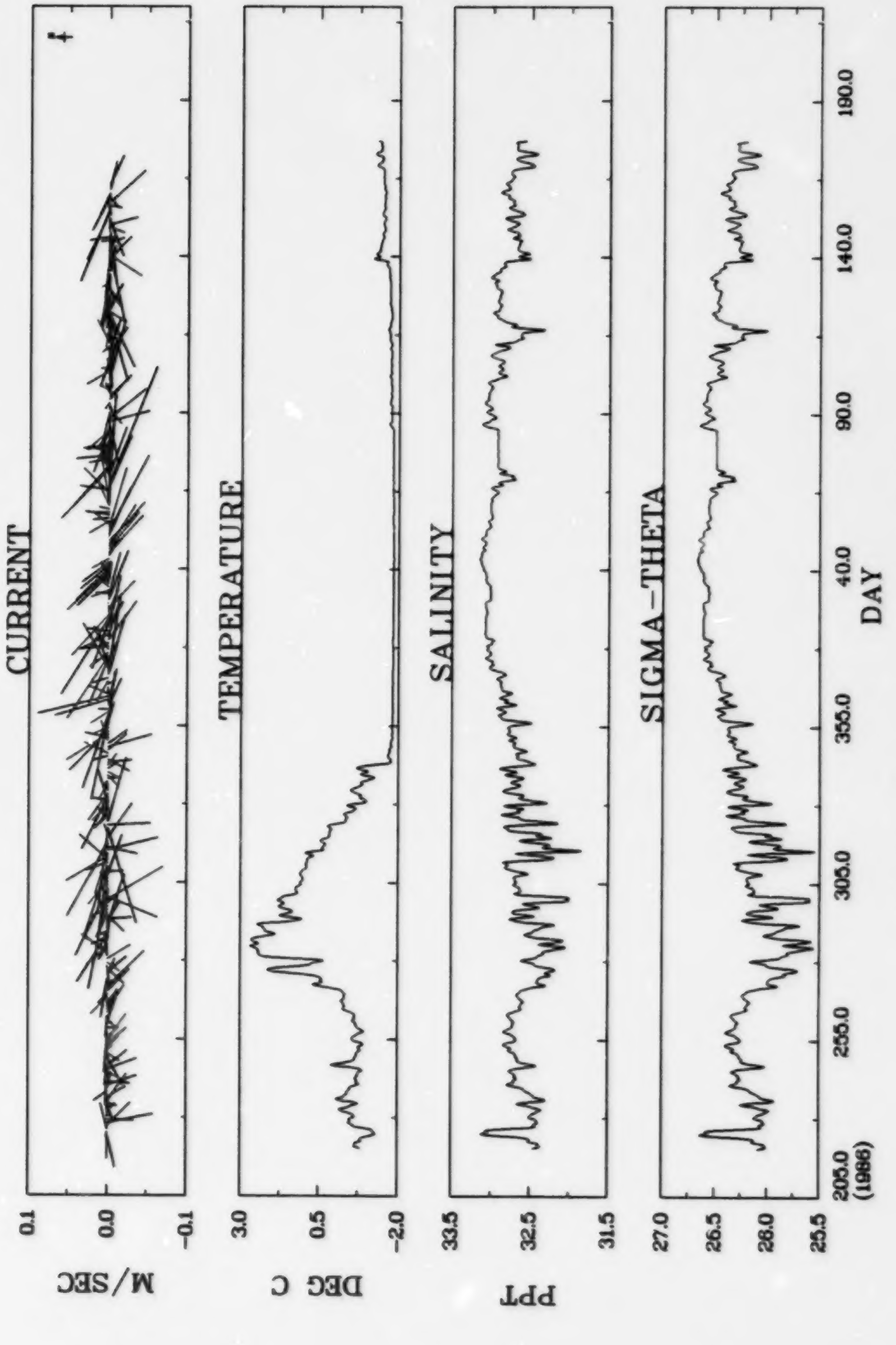

          BAND          NUMBER  PER
                                CENT


     ( 0.00,    .02)     470     6.1 *****************
     (  .02,    .04)    1166    15.3 ******************************************
     (  .04,    .06)    1386    18.1 ************************************************
     (  .06,    .08)    1355    17.7 ************************************************
     (  .08,    .10)    1009    13.2 ************************************
     (  .10,    .12)     748     9.8 ***************************
     (  .12,    .14)     515     6.7 ******************
     (  .14,    .16)     341     4.5 ************
     (  .16,    .18)     239     3.1 *********
     (  .18,    .20)     149     1.9 *****
     (  .20,    .22)      76     1.0 ***
     (  .22,    .24)      69      .9 **
     (  .24,    .26)      49      .6 **
     (  .26,    .28)      23      .3 *
     (  .28,    .30)      17      .2 *
     (  .30,    .32)       9      .1
     (  .32,    .34)      11      .1
     (  .34,    .36)       3      .0
     (  .36,    .38)       4      .1
     (  .38,    .40)       3      .0
     (  .40,    .42)       2      .0
     (  .42,    .44)       1      .0
```


STN. 793,   80 M.

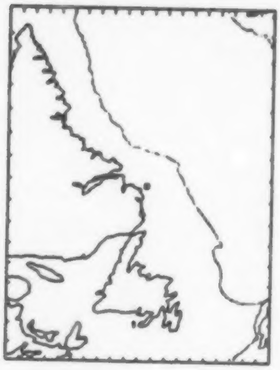
CM(793; 80M) - RESIDUALS
POSITION 53.842 N 55.832 W





CM(793; 80M) - RESIDUALS
POSITION 53.842 N 55.832 W

CM(789; 200M) - RESIDUAL STATISTICS

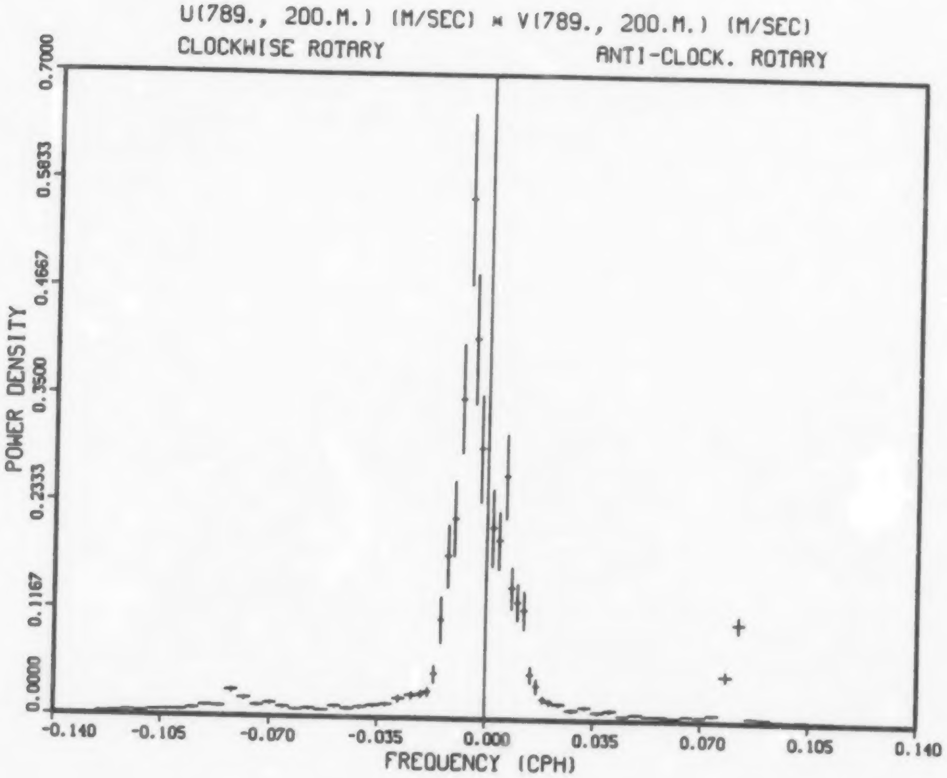


POSITION	53.733 N 55.447 W
BOTTOM DEPTH	200.0 M
DURATION	354.5 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	-1.81	1.94	-.11	.76
SALINITY	PPT	32.75	34.37	33.60	.24
SIGMA-THETA	KG/M**3	26.24	27.50	26.98	.18
N-S COMPONENT	CM/S	-34.08	10.73	-4.96	6.46
E-W COMPONENT	CM/S	-9.04	27.76	8.99	6.69
MAJOR AXIS	CM/S	-13.81	40.34	9.93	8.62
MINOR AXIS	CM/S	-16.98	9.16	-2.61	3.50

MAJOR AXIS ORIENTATION 133.61 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL

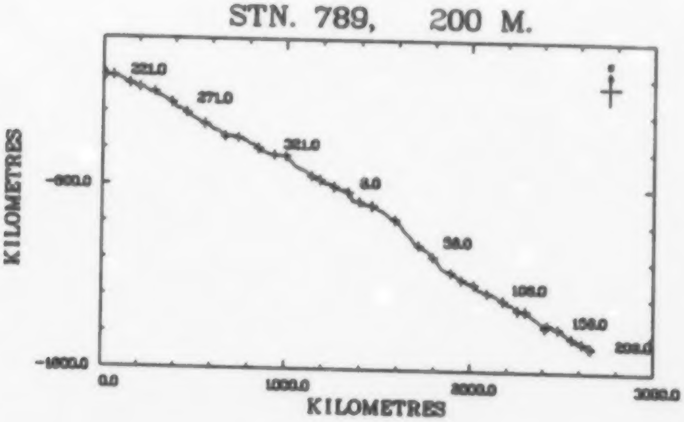


```
HISTOGRAM OF CURRENT SPEED AT (789; 200M)          TIDAL RESIDUALS (M/SEC)
 HAMILTON BANK
 CRUISE    86021.   STATION       789.    LAT   53.7332    LONG   55.4467
 INSTRUMENT 5358          BOTTOM DEPTH  200.0 METRES
 SAMPLED EACH      3600. SECS      START TIME  19:59:55 Z    4/ 8/  86

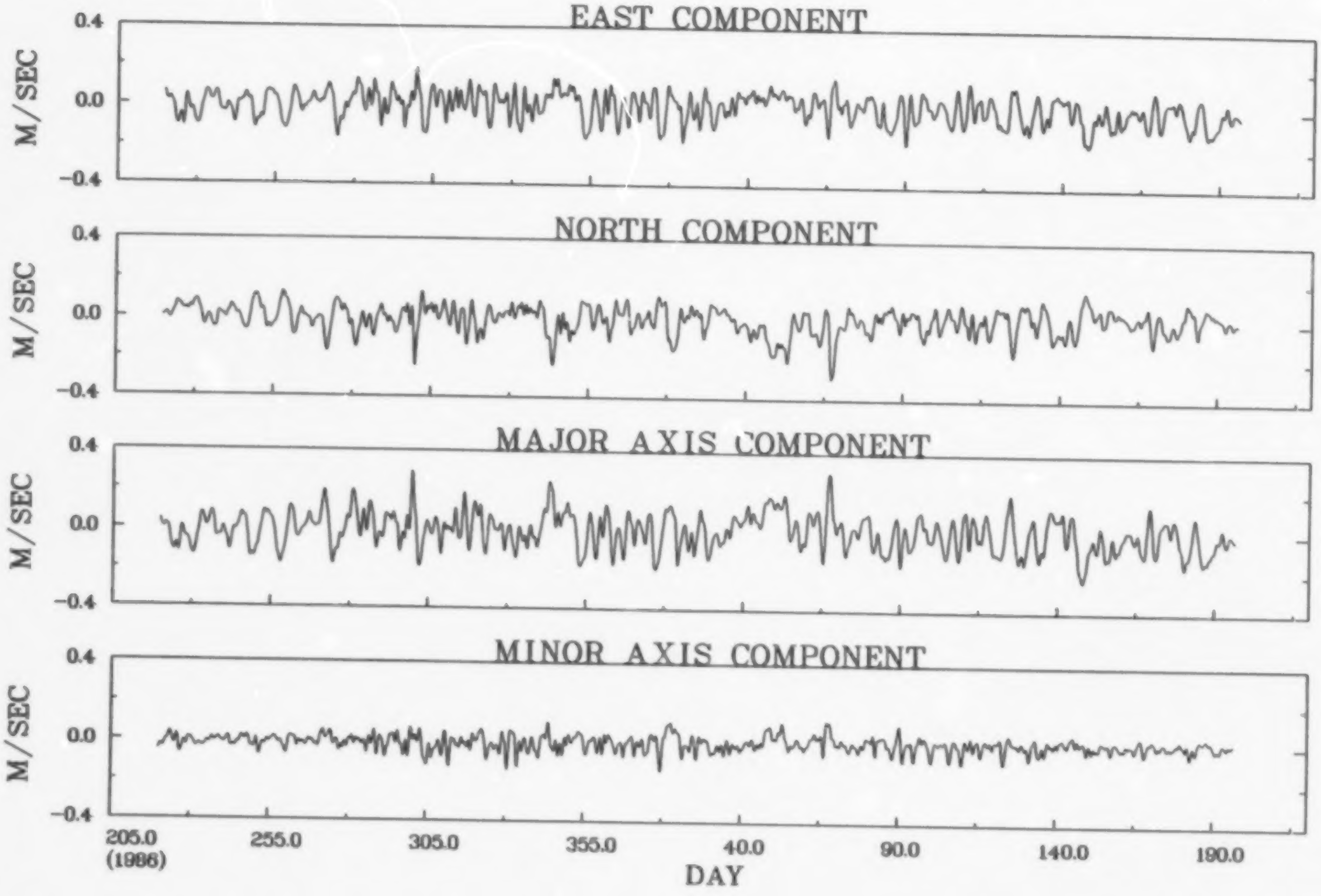
TOTAL NO. OF SAMPLES   8340
NO. OUT OF RANGE          0

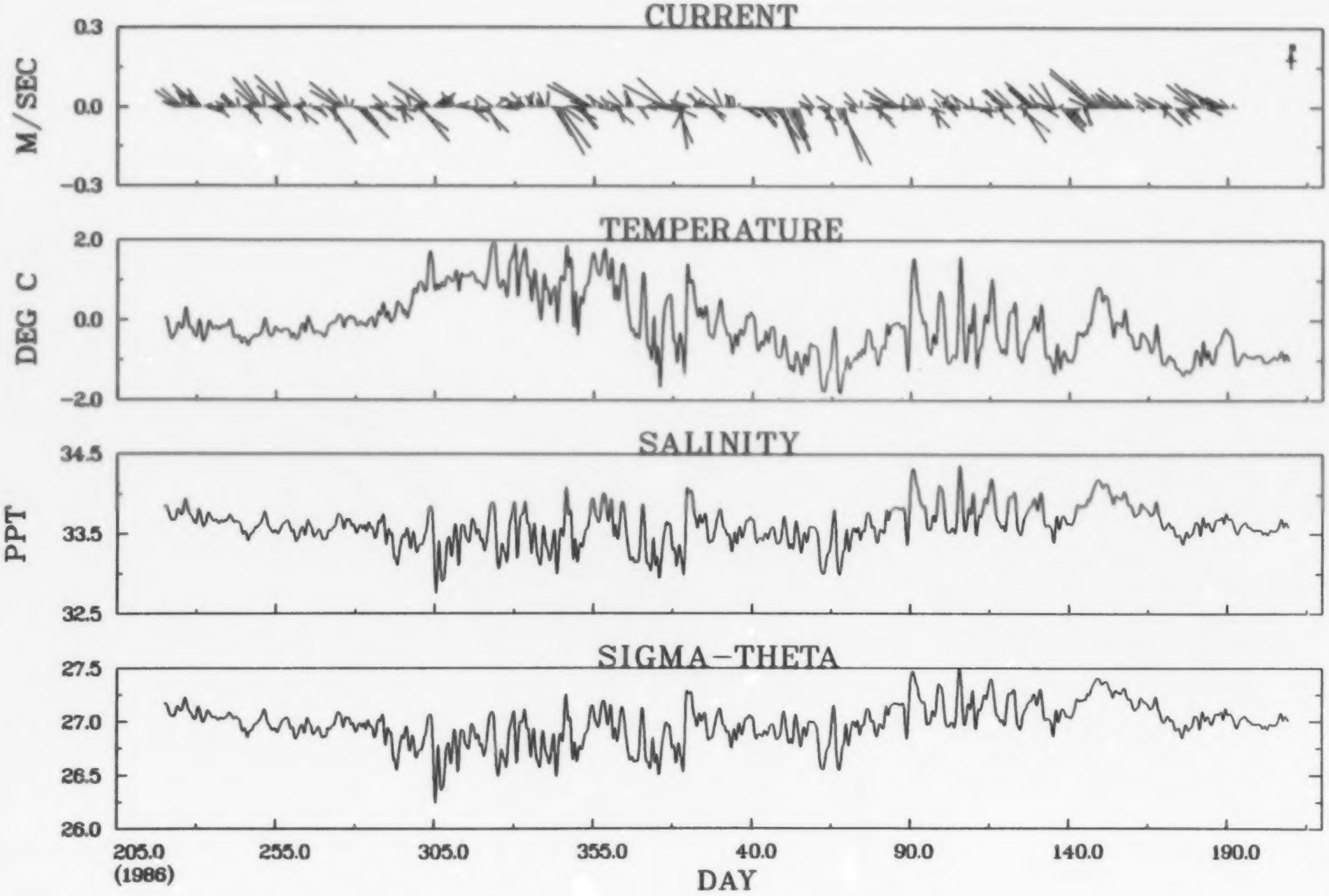
          BAND            NUMBER  PER
                                  CENT


      ( 0.00,    .02)      259     3.1 •••••••••••••
      (  .02,    .04)      687     8.2 ••••••••••••••••••••••••••••••••••
      (  .04,    .06)      815     9.8 •••••••••••••••••••••••••••••••••••••••••
      (  .06,    .08)      906    10.9 •••••••••••••••••••••••••••••••••••••••••••••
      (  .08,    .10)      868    10.4 •••••••••••••••••••••••••••••••••••••••••••
      (  .10,    .12)      798     9.6 ••••••••••••••••••••••••••••••••••••••••
      (  .12,    .14)      717     8.6 ••••••••••••••••••••••••••••••••••••
      (  .14,    .16)      685     8.2 ••••••••••••••••••••••••••••••••••
      (  .16,    .18)      713     8.5 ••••••••••••••••••••••••••••••••••••
      (  .18,    .20)      595     7.1 ••••••••••••••••••••••••••••••
      (  .20,    .22)      473     5.7 ••••••••••••••••••••••••
      (  .22,    .24)      298     3.6 •••••••••••••••
      (  .24,    .26)      199     2.4 ••••••••••
      (  .26,    .28)      118     1.4 ••••••
      (  .28,    .30)       70      .8 ▪▪▪
      (  .30,    .32)       51      .6 ▪▪▪
      (  .32,    .34)       25      .3 ▪
      (  .34,    .36)        9      .1
      (  .36,    .38)       15      .2 •
      (  .38,    .40)       13      .2 •
      (  .40,    .42)        8      .1
      (  .42,    .44)        9      .1
      (  .44,    .46)        2      .0
      (  .46,    .48)        3      .0
      (  .48,    .50)        1      .0
      (  .50,    .52)        0     0.0
      (  .52,    .54)        2      .0
      (  .54,    .56)        1      .0
```

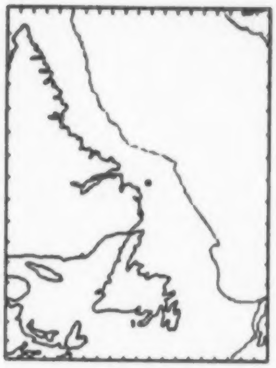


CM(789; 200M) – RESIDUALS
POSITION 53.733 N 55.447 W





CM(789; 200M) – RESIDUALS
POSITION 53.733 N 55.447 W



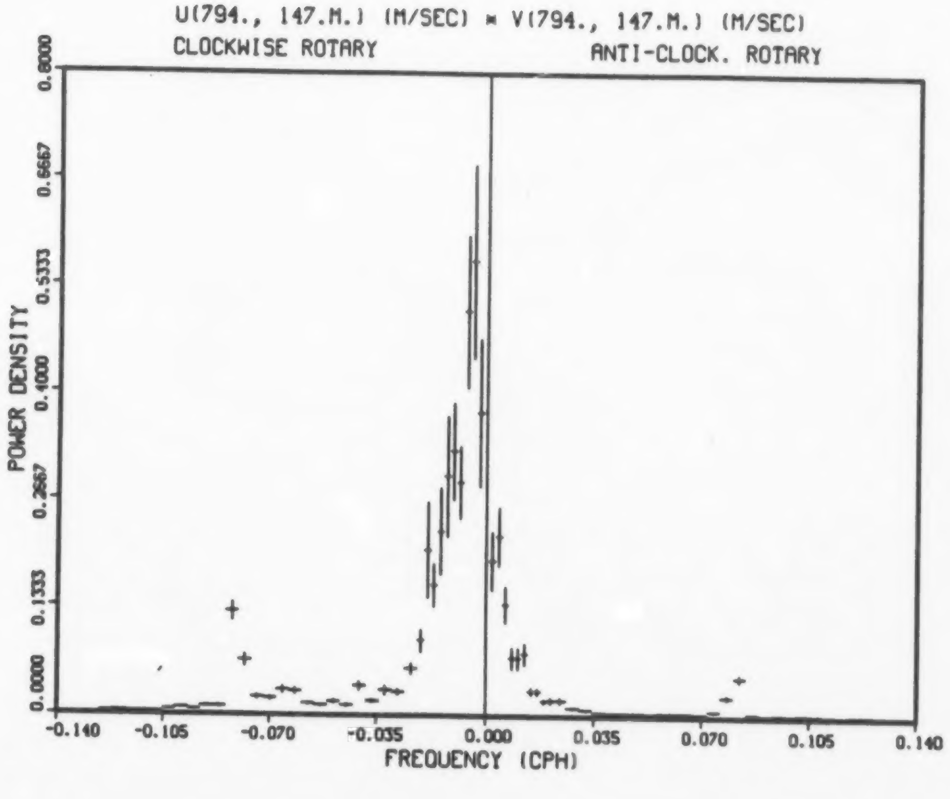
CM(794; 147M) - RESIDUAL STATISTICS

POSITION	53.842 N 55.184 W
BOTTOM DEPTH	153.0 M
DURATION	354.5 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	-1.63	2.62	.43	.87
SALINITY	PPT	33.15	34.63	33.94	.27
SIGMA-THETA	KG/M**3	26.68	27.66	27.22	.18
N-S COMPONENT	CM/S	-36.94	12.68	-5.58	6.15
E-W COMPONENT	CM/S	-41.09	18.42	-12.73	8.41
MAJOR AXIS	CM/S	-40.02	20.15	-13.88	8.76
MINOR AXIS	CM/S	-18.02	30.70	.56	5.64

MAJOR AXIS ORIENTATION 68.62 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



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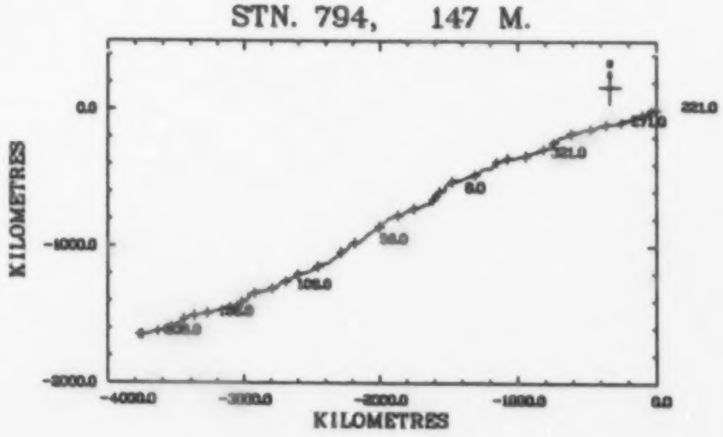
HISTOGRAM OF CURRENT SPEED AT (794: 147M)          TIDAL RESIDUALS (M/SEC)
 HAMILTON BANK
 CRUISE    86021.   STATION      794.    LAT   53.8422    LONG   55.1843
 INSTRUMENT 6401          BOTTOM DEPTH  153.0 METRES
 SAMPLED EACH     3600. SECS      START TIME  22:59:55 Z    4/ 8/1986

TOTAL NO. OF SAMPLES   8340
NO. OUT OF RANGE          0

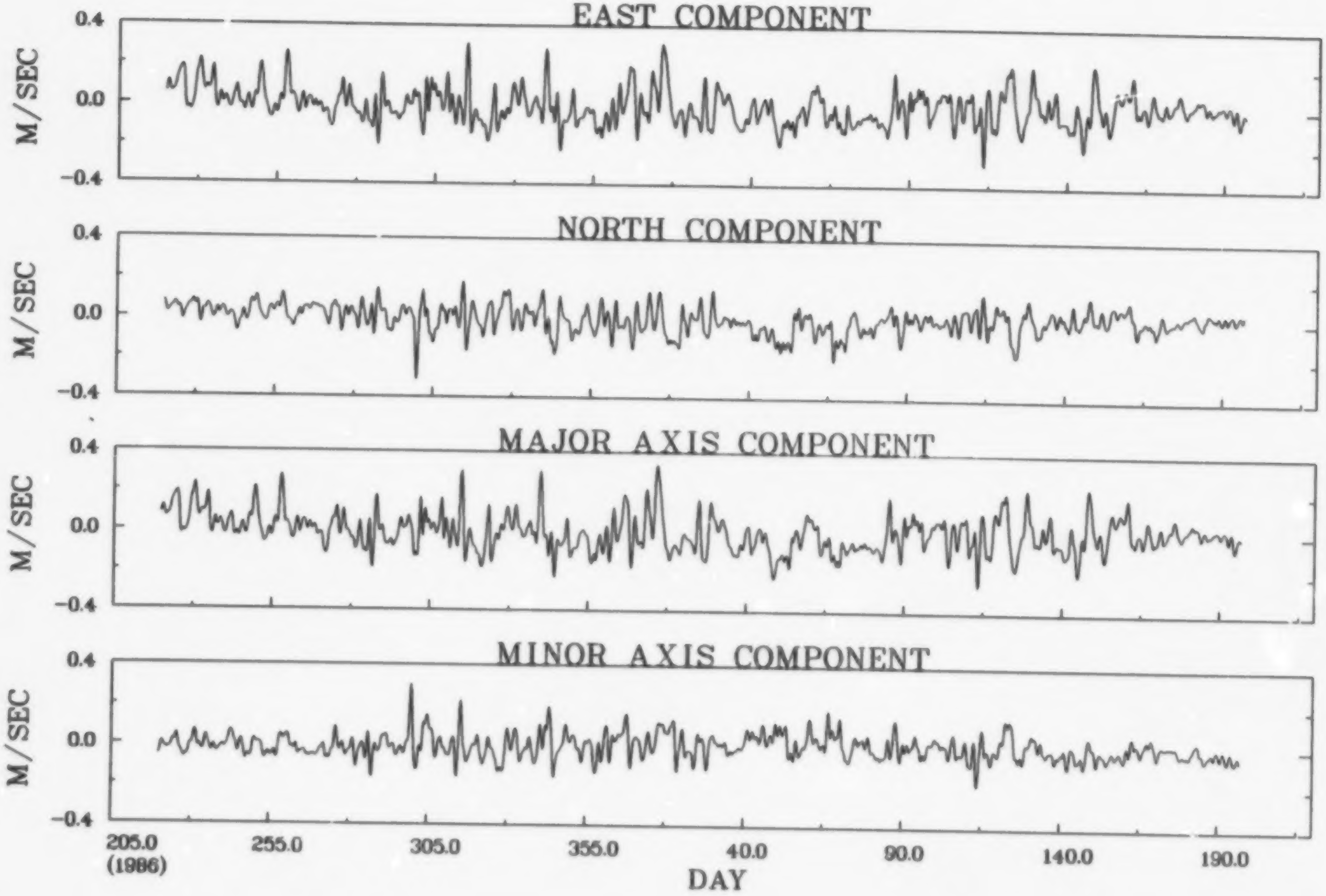

        BAND          NUMBER  PER
                              CENT

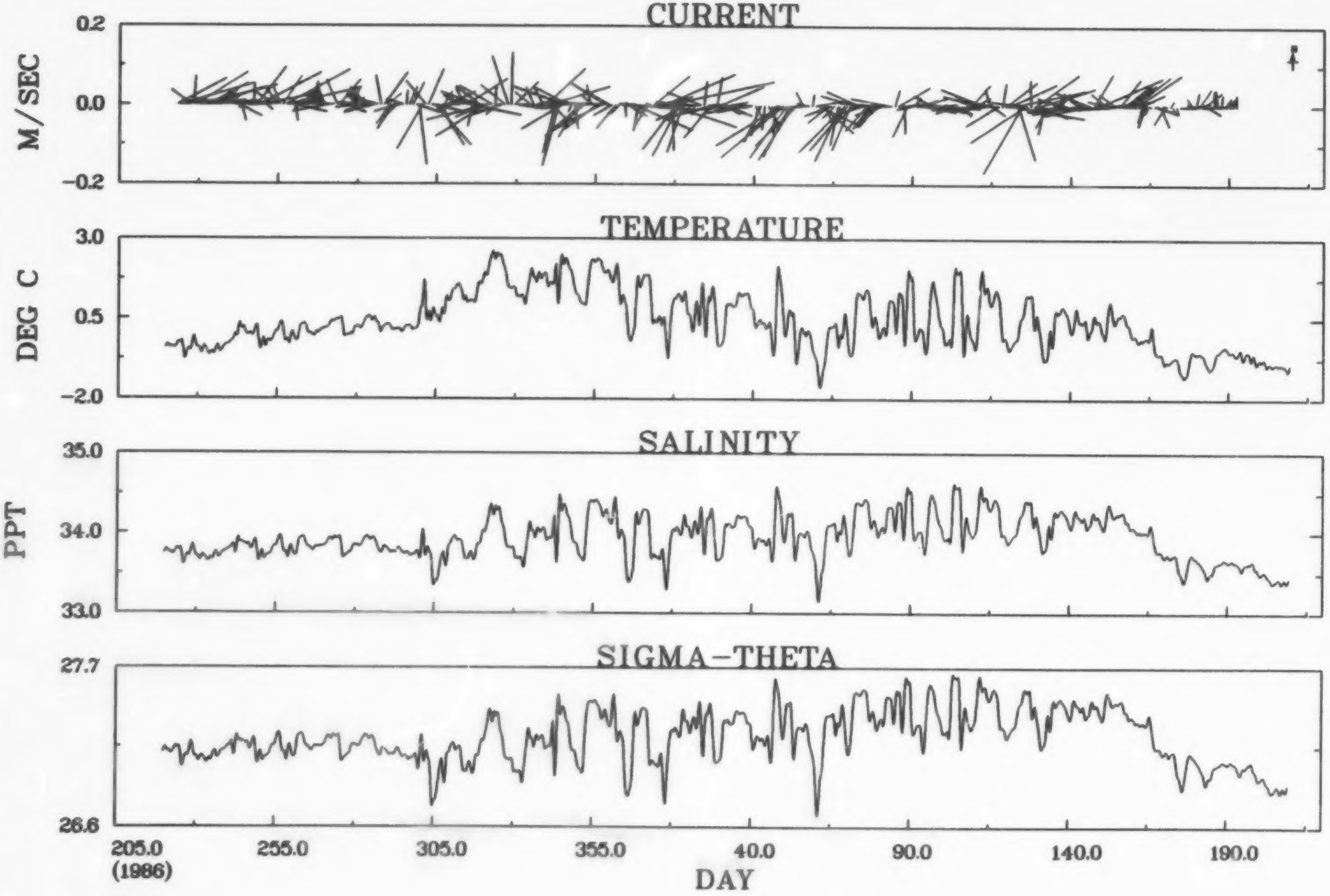

    ( 0.00,    .02)     57     .7 ***
    (  .02,    .04)    193    2.3 ***********
    (  .04,    .06)    359    4.3 ********************
    (  .06,    .08)    582    7.0 ********************************
    (  .08,    .10)    745    8.9 *****************************************
    (  .10,    .12)    834   10.0 **********************************************
    (  .12,    .14)    880   10.6 ************************************************
    (  .14,    .16)    883   10.6 ************************************************
    (  .16,    .18)    775    9.3 *******************************************
    (  .18,    .20)    612    7.3 **********************************
    (  .20,    .22)    564    6.8 *******************************
    (  .22,    .24)    471    5.6 **************************
    (  .24,    .26)    389    4.7 **********************
    (  .26,    .28)    313    3.8 *****************
    (  .28,    .30)    231    2.8 *************
    (  .30,    .32)    169    2.0 *********
    (  .32,    .34)    105    1.3 ******
    (  .34,    .36)     67     .8 ****
    (  .36,    .38)     43     .5 **
    (  .38,    .40)     28     .3 **
    (  .40,    .42)     12     .1 *
    (  .42,    .44)     14     .2 *
    (  .44,    .46)      8     .1
    (  .46,    .48)      6     .1
```



STN. 794,   147 M.

CM(794; 147M) – RESIDUALS
POSITION 53.842 N 55.184 W





CM(794; 147M) – RESIDUALS
POSITION 53.842 N 55.184 W

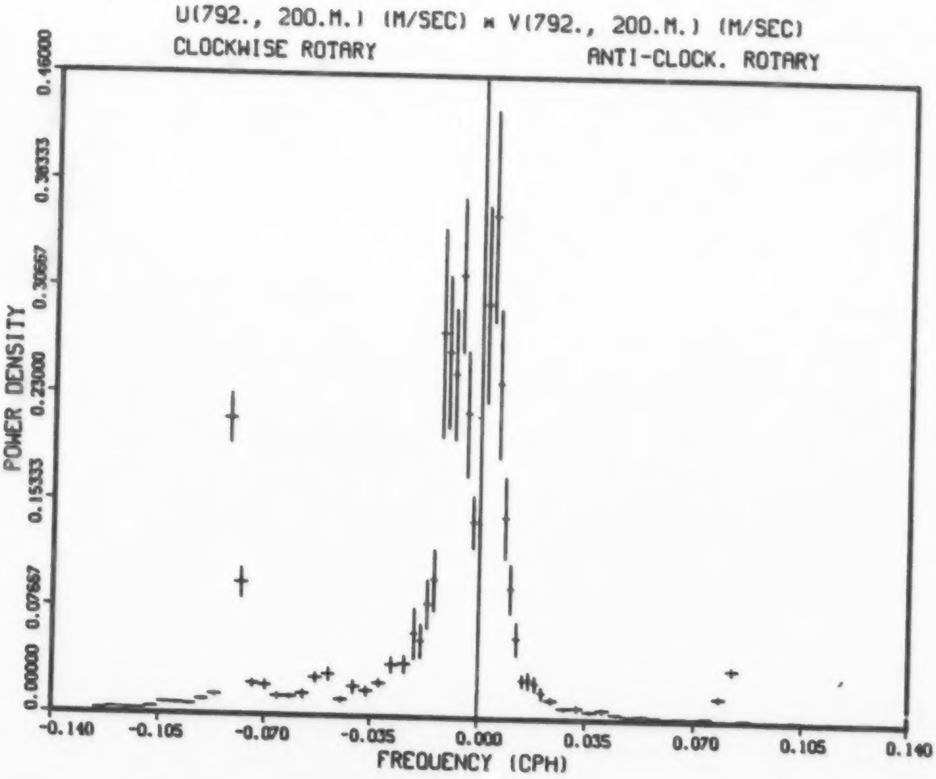
CM(792; 200M) - RESIDUAL STATISTICS

POSITION	53.726 N 53.618 W
BOTTOM DEPTH	200.0 M
DURATION	348.5 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	-.66	3.72	1.82	.80
SALINITY	PPT	33.97	35.07	34.60	.21
SIGMA-THETA	KG/M**3	27.28	27.93	27.66	.13
N-S COMPONENT	CM/S	-27.59	18.44	-5.28	7.70
E-W COMPONENT	CM/S	-17.90	21.98	3.42	5.55
MAJOR AXIS	CM/S	-27.66	17.69	-5.52	7.71
MINOR AXIS	CM/S	-17.74	21.92	3.02	5.54

MAJOR AXIS ORIENTATION 355.76 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



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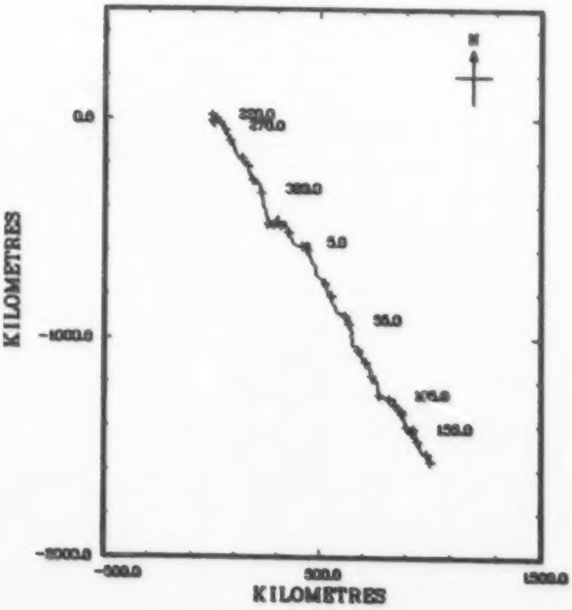
HISTOGRAM OF CURRENT SPEED AT (792; 200M)          TIDAL RESIDUALS (M/SEC)
 HAMILTON BANK
 CRUISE    86021.   STATION      792.    LAT   53.7258    LONG   53.6178
 INSTRUMENT 4421          BOTTOM DEPTH  200.0 METRES
 SAMPLED EACH      3600. SECS      START TIME  18:59:55 Z    3/ 8/1986

TOTAL NO. OF SAMPLES   8340
NO. OUT OF RANGE          0

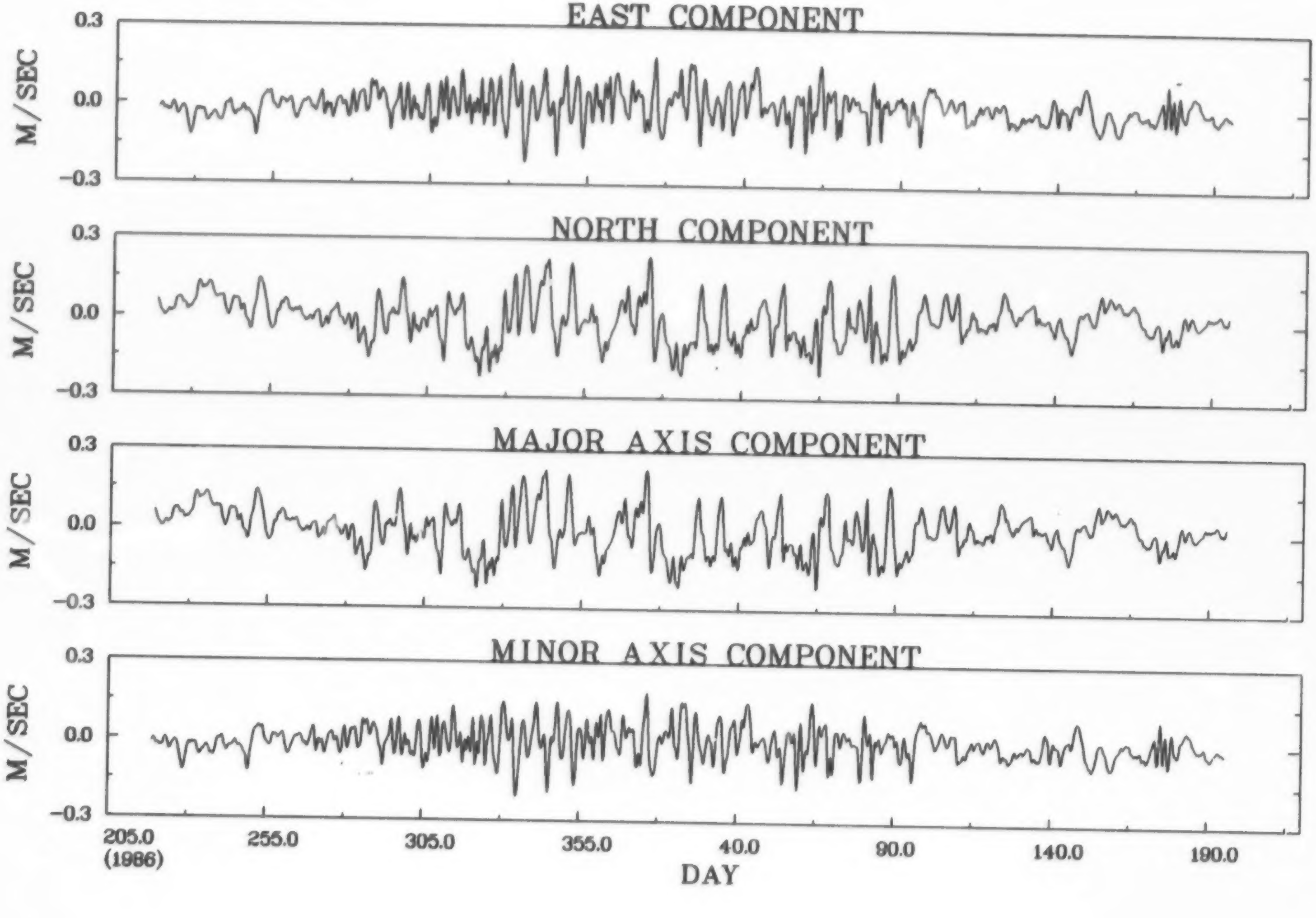
          BAND          NUMBER  PER
                                CENT

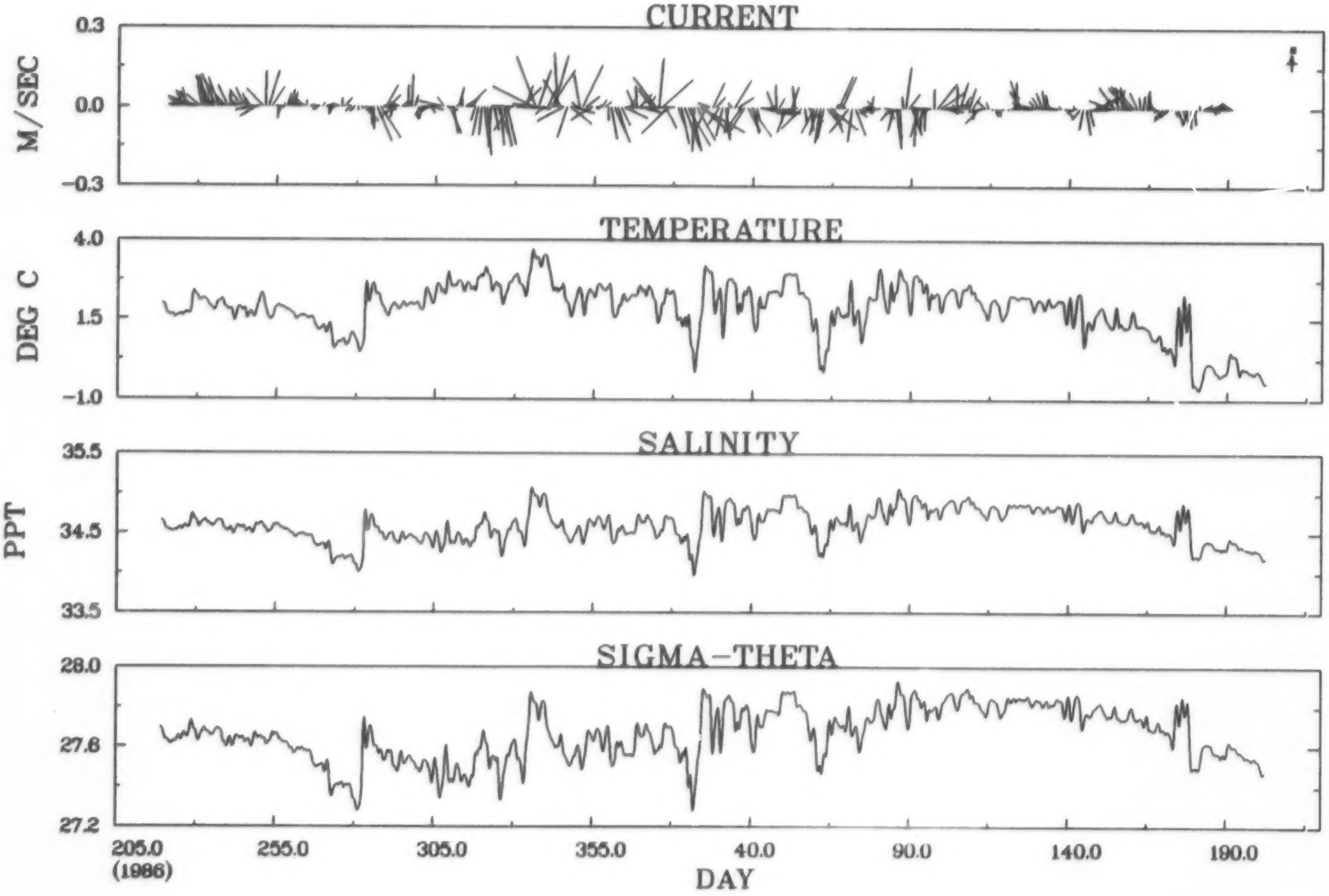
    ( 0.00,    .02)     259    3.1 **********
    (  .02,    .04)     824    9.9 *********************************
    (  .04,    .06)    1156   13.9 **********************************************
    (  .06,    .08)    1210   14.5 ************************************************
    (  .08,    .10)    1067   12.8 *******************************************
    (  .10,    .12)     924   11.1 *************************************
    (  .12,    .14)     732    8.8 *****************************
    (  .14,    .16)     574    6.9 ***********************
    (  .16,    .18)     473    5.7 *******************
    (  .18,    .20)     402    4.8 ****************
    (  .20,    .22)     274    3.3 ***********
    (  .22,    .24)     171    2.1 *******
    (  .24,    .26)     133    1.6 *****
    (  .26,    .28)      76     .9 ***
    (  .28,    .30)      30     .4 *
    (  .30,    .32)      23     .3 *
    (  .32,    .34)       7     .1
    (  .34,    .36)       4     .0
    (  .36,    .38)       1     .0
```

STN. 792,   200 M.



CM(792; 200M) - RESIDUALS
POSITION 53.726 N 53.618 W

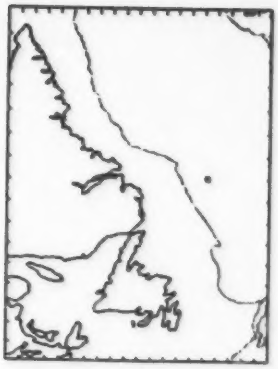




CM(792; 200M) - RESIDUALS
POSITION 53.726 N 53.618 W

CM(787; 211M) - RESIDUAL STATISTICS

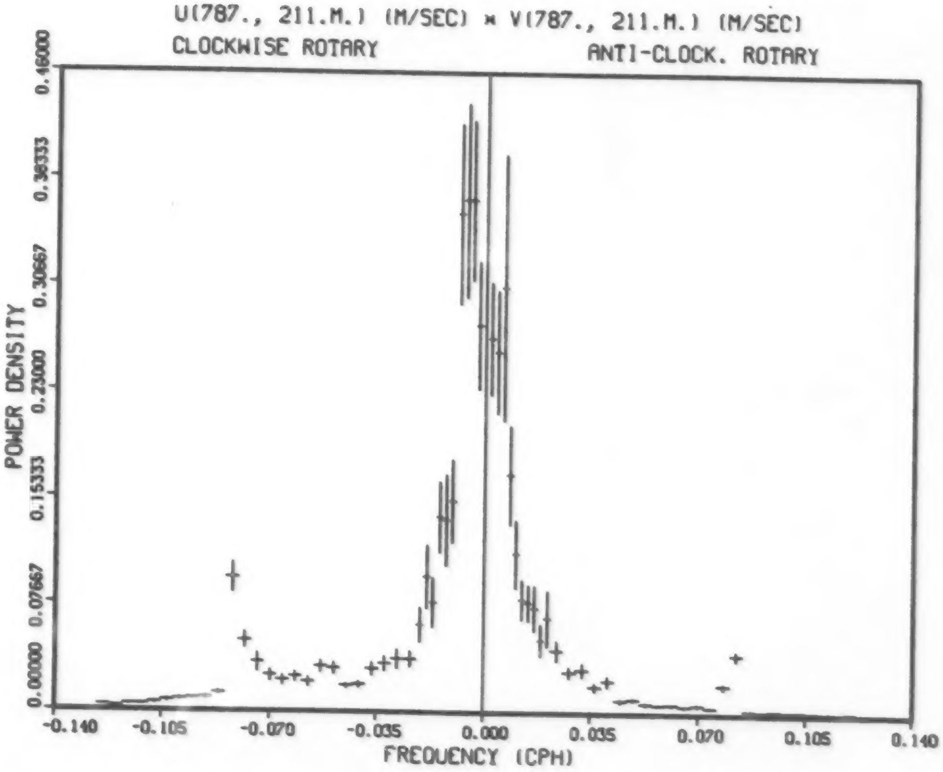
POSITION	54.052 N 50.741 W
BOTTOM DEPTH	1011.0 M
DURATION	349.8 DAYS



		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	1.39	3.84	3.09	.39
SALINITY	PPT	34.41	34.93	34.79	.10
SIGMA-THETA	KG/M**3	27.43	27.81	27.71	.06
N-S COMPONENT	CM/S	-45.85	26.55	-15.38	10.04
E-W COMPONENT	CM/S	-13.50	34.24	7.15	5.61
MAJOR AXIS	CM/S	-51.77	22.89	-16.80	10.39
MINOR AXIS	CM/S	-22.94	24.53	2.36	4.93

MAJOR AXIS ORIENTATION 343.04 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



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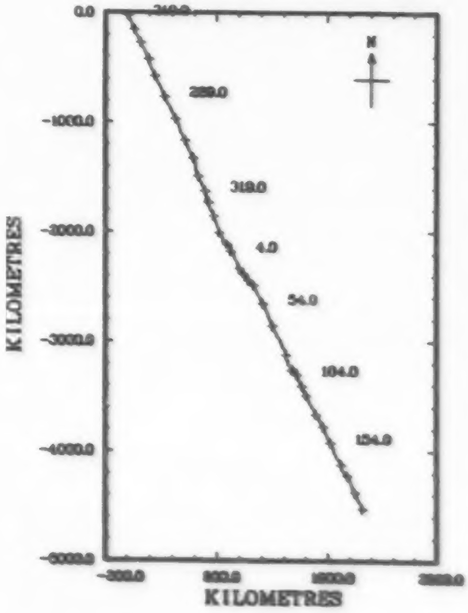
HISTOGRAM OF CURRENT SPEED AT (787; 211M)          TIDAL RESIDUALS (M/SEC)
 HAMILTON BANK
  CRUISE    86021.   STATION       787.    LAT   54.0517     LONG    50.7413
  INSTRUMENT 4600          BOTTOM DEPTH 1011.0 METRES
  SAMPLED EACH      3600. SECS      START TIME  23:59:55 Z     2/ 8/  86

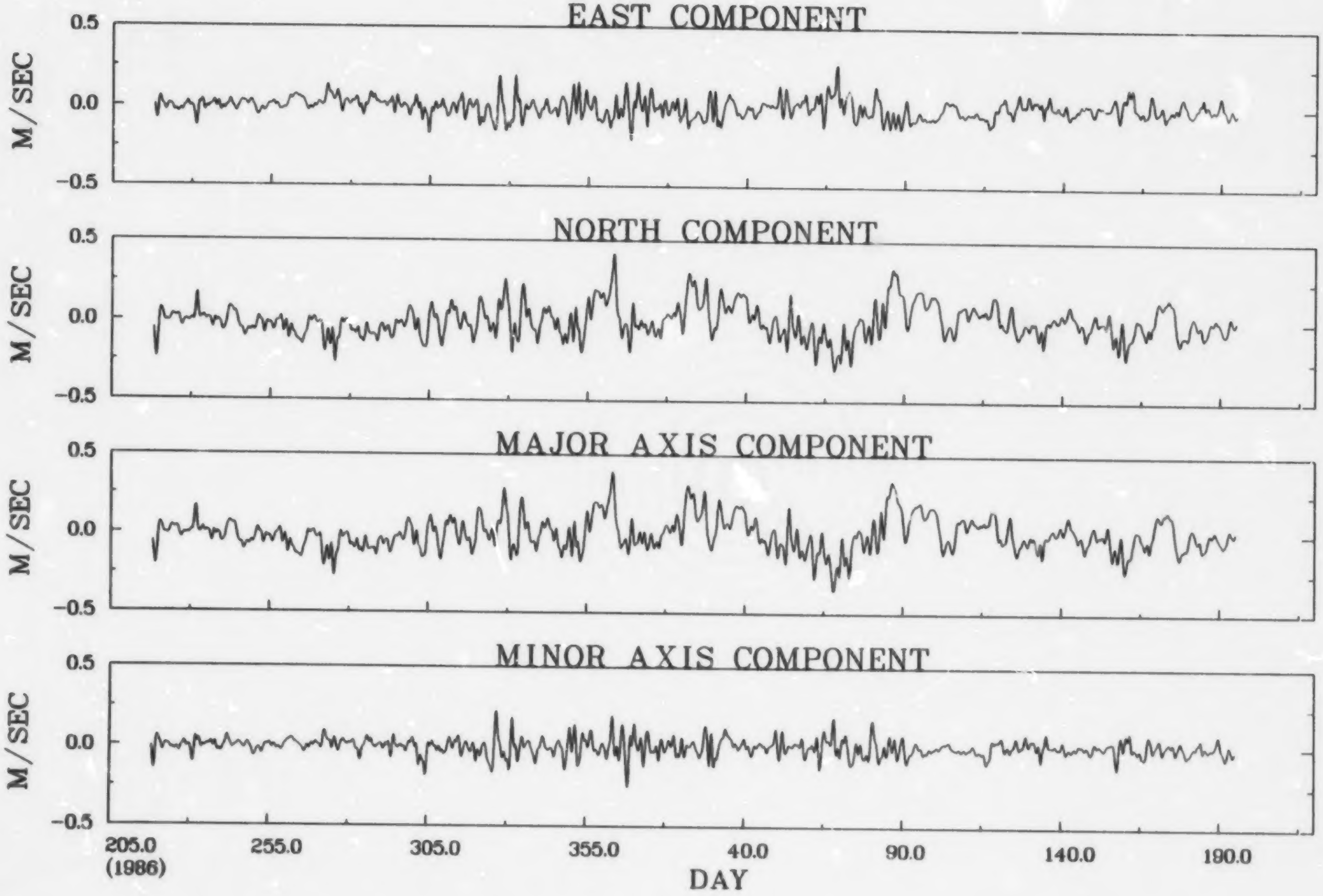
TOTAL NO. OF SAMPLES   8340
NO. OUT OF RANGE          0

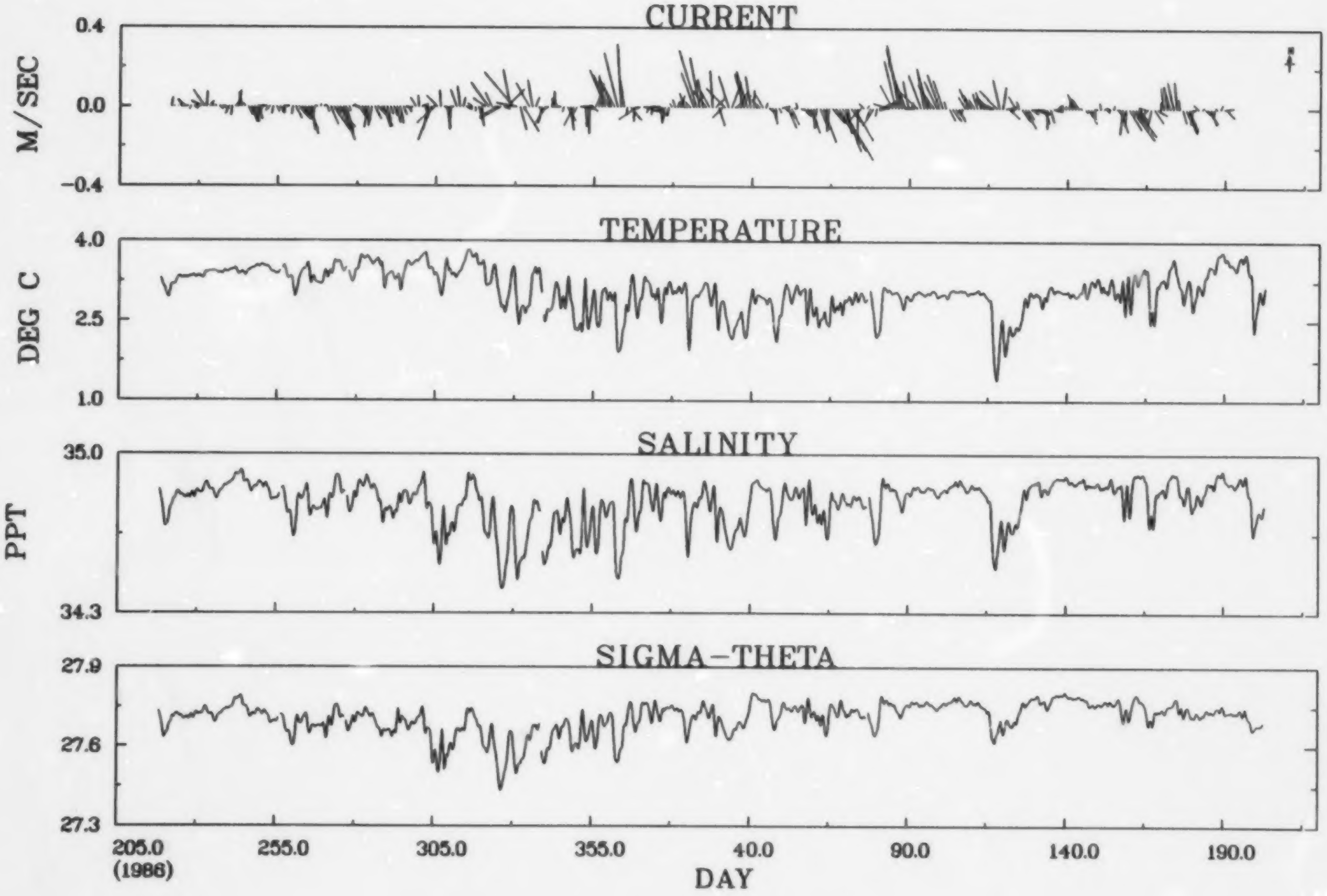

        BAND          NUMBER  PER
                              CENT


    ( 0.00,   .02)      82    1.0 *****
    (  .02,   .04)     238    2.9 *************
    (  .04,   .06)     307    3.7 *****************
    (  .06,   .08)     408    4.9 ***********************
    (  .08,   .10)     424    5.1 ************************
    (  .10,   .12)     460    5.5 **************************
    (  .12,   .14)     571    6.8 ********************************
    (  .14,   .16)     664    8.0 *************************************
    (  .16,   .18)     809    9.7 *********************************************
    (  .18,   .20)     736    8.8 *****************************************
    (  .20,   .22)     664    8.0 *************************************
    (  .22,   .24)     640    7.7 ************************************
    (  .24,   .26)     586    7.0 *********************************
    (  .26,   .28)     443    5.3 *************************
    (  .28,   .30)     341    4.1 *******************
    (  .30,   .32)     270    3.2 ***************
    (  .32,   .34)     219    2.6 ************
    (  .34,   .36)     152    1.8 ********
    (  .36,   .38)     110    1.3 ******
    (  .38,   .40)      76     .9 ****
    (  .40,   .42)      38     .5 **
    (  .42,   .44)      34     .4 **
    (  .44,   .46)      25     .3 *
    (  .46,   .48)      10     .1 *
    (  .48,   .50)       7     .1
    (  .50,   .52)       5     .1
    (  .52,   .54)       3     .0
    (  .54,   .56)       8     .1
    (  .56,   .58)       7     .1
    (  .58,   .60)       0    0.0
    (  .60,   .62)       2     .0
    (  .62,   .64)       1     .0
```

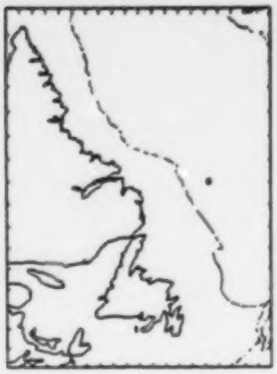

STN. 787,   211 M.

CM(787; 211M) – RESIDUALS
POSITION 54.052 N 50.741 W





CM(787; 211M) - RESIDUALS
POSITION 54.052 N 50.741 W



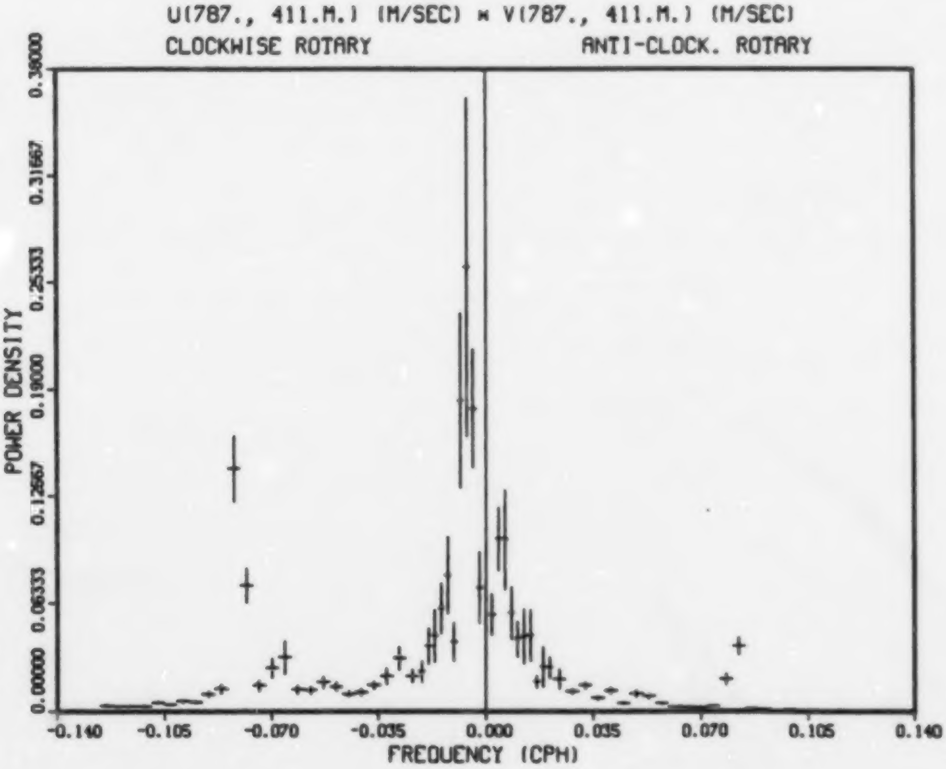
CM(787; 411M) - RESIDUAL STATISTICS

POSITION 54.052 N 50.741 W
BOTTOM DEPTH 1011.0 M
DURATION 163.3 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	2.89	3.80	3.50	.18
SALINITY	PPT	34.58	35.00	34.80	.07
SIGMA-THETA	KG/M**3	27.53	27.86	27.68	.06
N-S COMPONENT	CM/S	-26.68	10.44	-12.06	6.09
E-W COMPONENT	CM/S	-6.50	16.76	4.95	3.63
MAJOR AXIS	CM/S	-28.62	7.08	-13.00	6.32
MINOR AXIS	CM/S	-10.64	14.83	.99	3.23

MAJOR AXIS ORIENTATION 342.05 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



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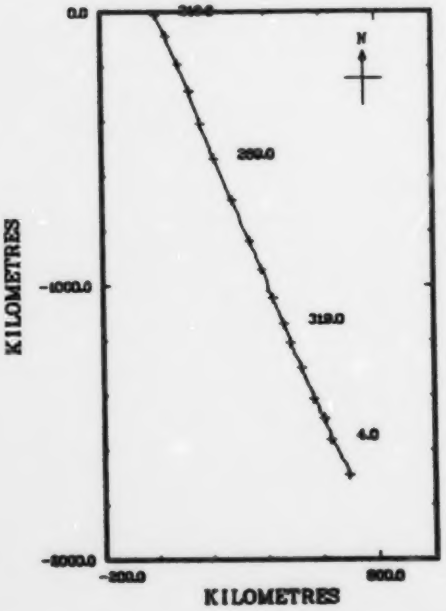
HISTOGRAM OF CURRENT SPEED AT (787; 411M)          TIDAL RESIDUALS (M/SEC)
 HAMILTON BANK
 CRUISE    86021.   STATION      787.    LAT   54.0517    LONG   50.7413
 INSTRUMENT 5001          BOTTOM DEPTH 1011.0 METRES
 SAMPLED EACH     3600. SECS      START TIME  23:59:55 Z    2/ 8/  86

TOTAL NO. OF SAMPLES   4055
NO. OUT OF RANGE          0

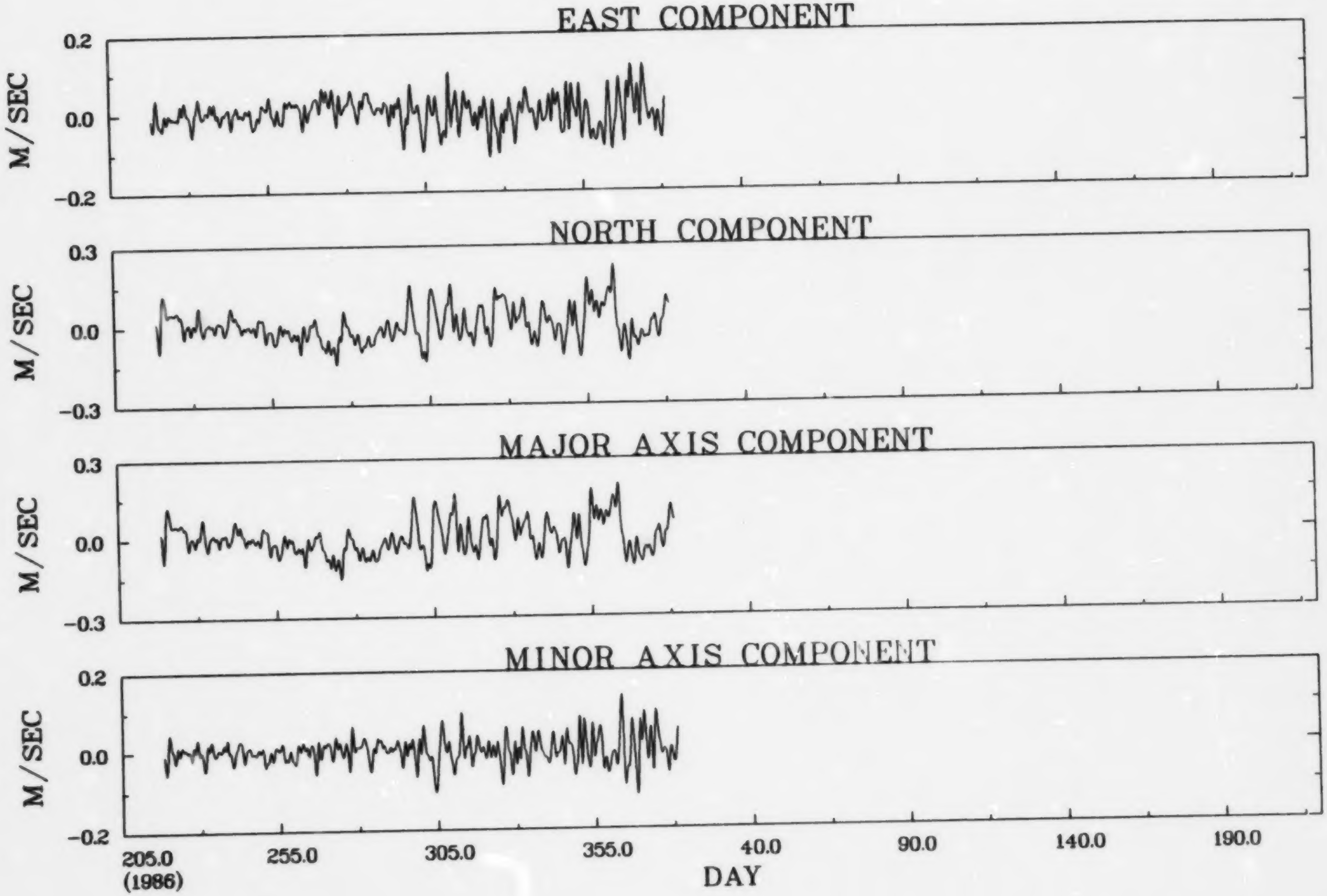
          BAND          NUMBER  PER
                                CENT

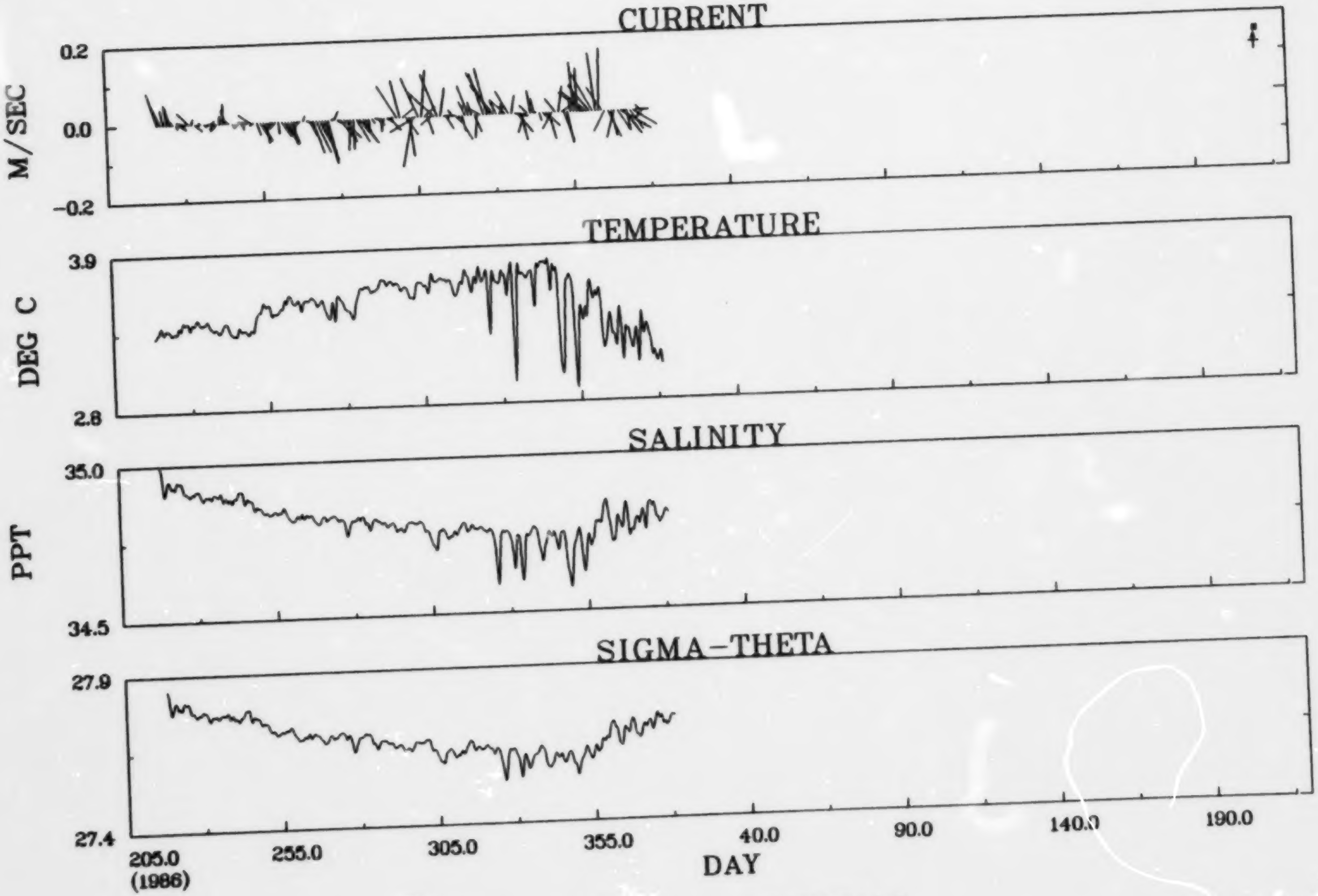

      ( 0.00,    .02)      61    1.5 *****
      (  .02,    .04)     163    4.0 **************
      (  .04,    .06)     224    5.5 *******************
      (  .06,    .08)     276    6.8 ***********************
      (  .08,    .10)     396    9.8 *********************************
      (  .10,    .12)     442   10.9 *************************************
      (  .12,    .14)     485   12.0 ****************************************
      (  .14,    .16)     517   12.7 *******************************************
      (  .16,    .18)     444   10.9 *************************************
      (  .18,    .20)     349    8.6 *****************************
      (  .20,    .22)     283    7.0 ************************
      (  .22,    .24)     207    5.1 *****************
      (  .24,    .26)     106    2.6 *********
      (  .26,    .28)      52    1.3 ****
      (  .28,    .30)      35     .9 ***
      (  .30,    .32)      14     .3 *
      (  .32,    .34)       1     .0
```

STN. 787,   411 M.

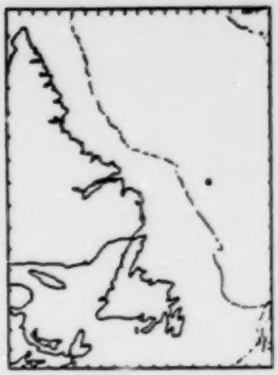


CM(787; 411M) - RESIDUALS
POSITION 54.052 N 50.741 W





CM(787; 411M) - RESIDUALS
POSITION 54.052 N 50.741 W



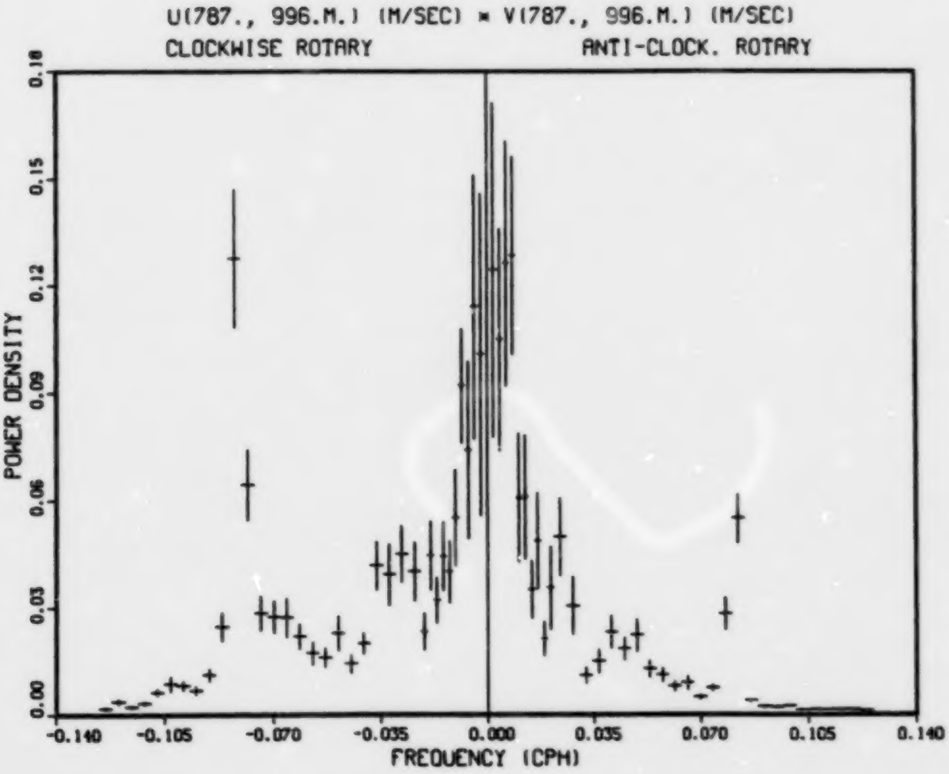
CM(787; 996M) - RESIDUAL STATISTICS

POSITION	54.052 N 50.741 W
BOTTOM DEPTH	1011.0 M
DURATION	193.5 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	3.18	3.63	3.35	.09
SALINITY	PPT	35.10	35.20	35.15	.02
SIGMA-THETA	KG/M**3	27.95	28.03	27.98	.02
N-S COMPONENT	CM/S	-27.45	9.53	-7.87	5.77
E-W COMPONENT	CM/S	-16.42	13.88	2.39	3.61
MAJOR AXIS	CM/S	-28.45	10.80	-8.14	6.24
MINOR AXIS	CM/S	-13.84	11.25	-1.16	2.72

MAJOR AXIS ORIENTATION 335.01 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



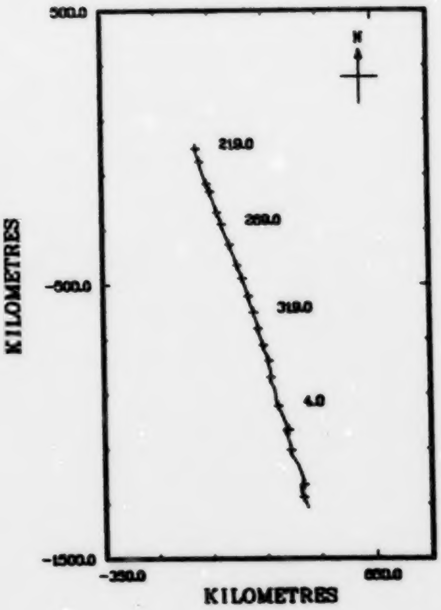
```
HISTOGRAM OF CURRENT SPEED AT (787; 996M)          TIDAL RESIDUALS (M/SEC)
 HAMILTON BANK
 CRUISE    86021.   STATION      787.    LAT   54.0517    LONG   50.7413
 INSTRUMENT 5002          BOTTOM DEPTH 1011.0 METRES
 SAMPLED EACH     3600. SECS      START TIME  23:59:55 Z    2/ 8/  86

TOTAL NO. OF SAMPLES   4766
NO. OUT OF RANGE          0

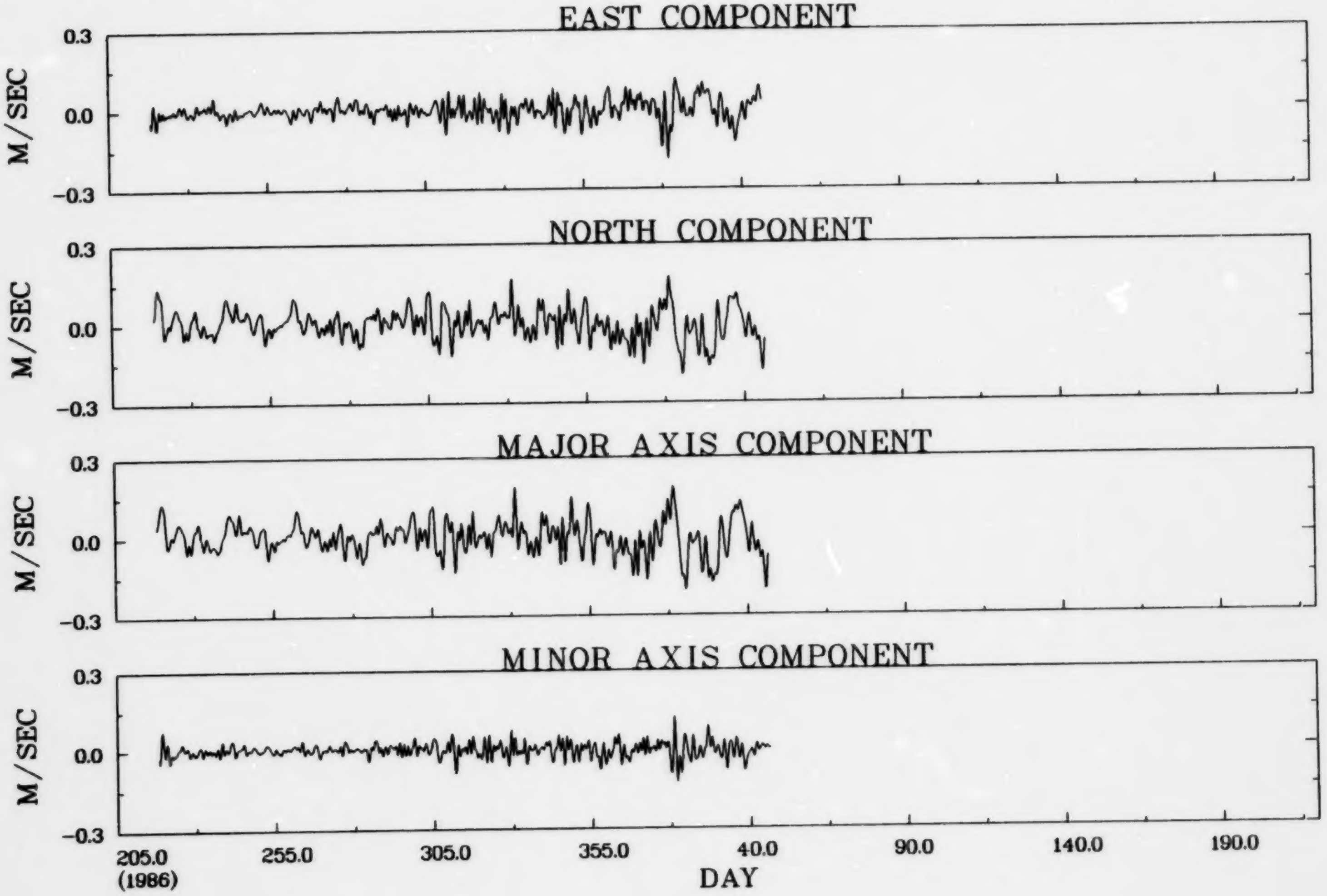
          BAND          NUMBER  PER
                                CENT

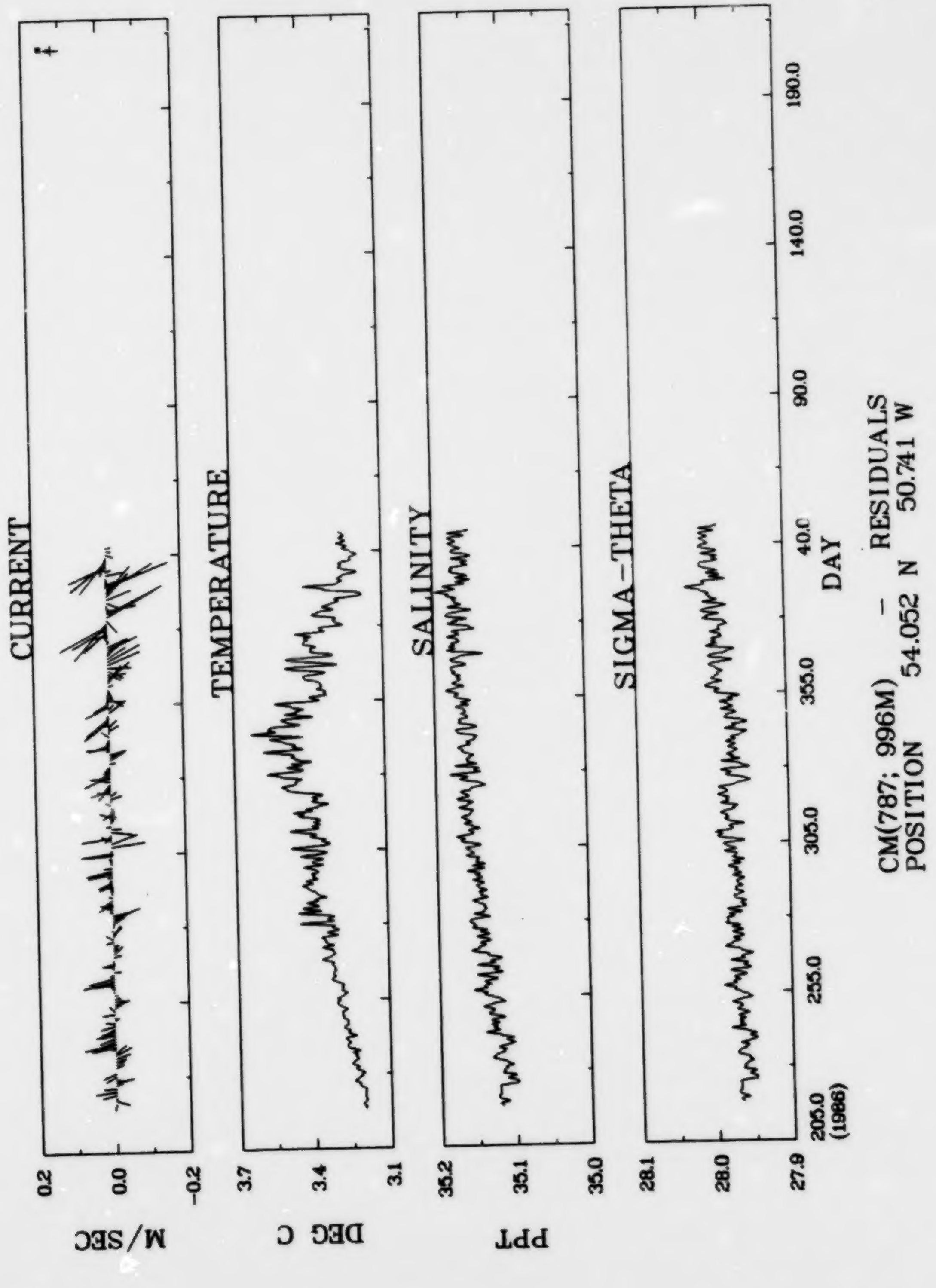
     ( 0.00,   .02)     181    3.8 ***********
     (  .02,   .04)     427    9.0 ***************************
     (  .04,   .06)     632   13.3 ****************************************
     (  .06,   .08)     713   15.0 *********************************************
     (  .08,   .10)     669   14.0 ******************************************
     (  .10,   .12)     568   11.9 ************************************
     (  .12,   .14)     490   10.3 *******************************
     (  .14,   .16)     357    7.5 **********************
     (  .16,   .18)     247    5.2 ****************
     (  .18,   .20)     151    3.2 *********
     (  .20,   .22)      97    2.0 ******
     (  .22,   .24)      78    1.6 *****
     (  .24,   .26)      67    1.4 ****
     (  .26,   .28)      39     .8 **
     (  .28,   .30)      14     .3 *
     (  .30,   .32)      21     .4 *
     (  .32,   .34)      10     .2 *
     (  .34,   .36)       3     .1
     (  .36,   .38)       1     .0
     (  .38,   .40)       1     .0
```

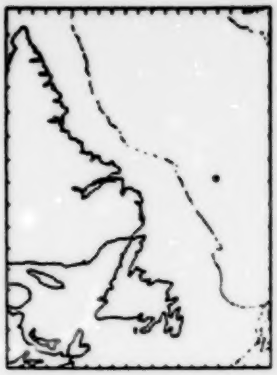
STN. 787,   996 M.



CM(787; 996M) – RESIDUALS
POSITION 54.052 N 50.741 W




CURRENT
M/SEC
0.2
0.0
-0.2
TEMPERATURE
DEG C
3.7
3.4
3.1
SALINITY
PPT
35.2
35.1
35.0
SIGMA-THETA
28.1
28.0
27.9
205.0
(1986)
255.0
305.0
355.0
40.0
90.0
140.0
190.0
DAY
CM(787; 996M) - RESIDUALS
POSITION 54.052 N 50.741 W



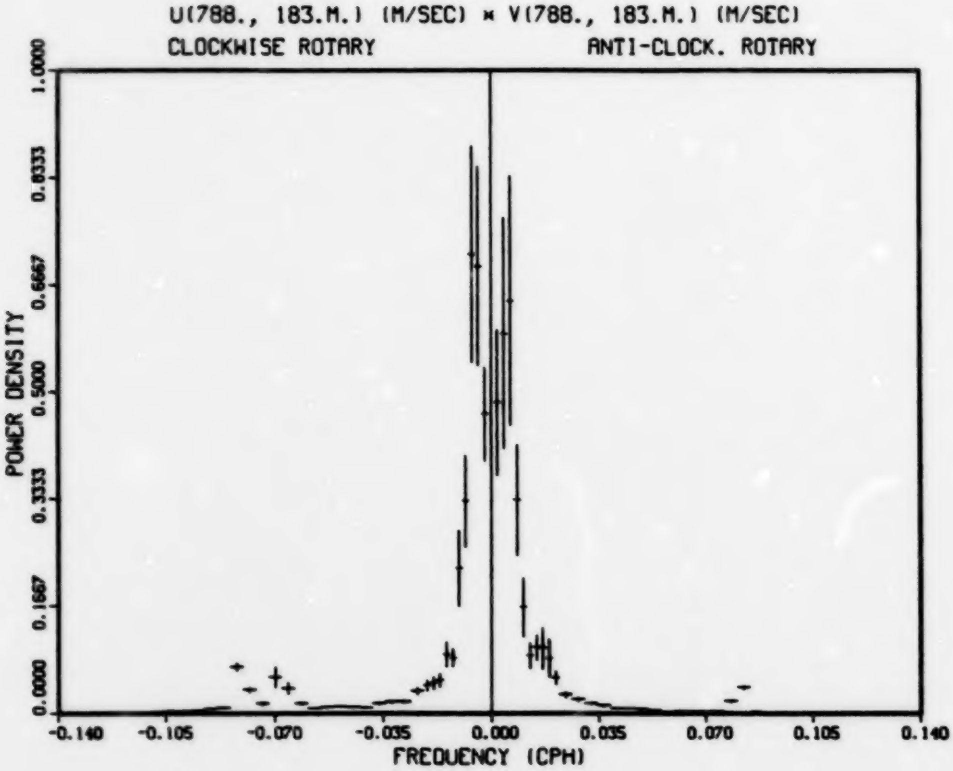
CM(788; 183M) - RESIDUAL STATISTICS

POSITION	54.182 N 50.151 W
BOTTOM DEPTH	2483.0 M
DURATION	342.5 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	2.38	3.89	3.22	.30
SALINITY	PPT	34.86	35.19	34.97	.04
SIGMA-THETA	KG/M**3	27.73	28.02	27.84	.04
N-S COMPONENT	CM/S	-51.84	27.44	-15.10	8.36
E-W COMPONENT	CM/S	-24.03	45.10	3.38	8.22
MAJOR AXIS	CM/S	-51.15	5.51	-13.73	8.70
MINOR AXIS	CM/S	-44.69	39.44	-7.13	7.86

MAJOR AXIS ORIENTATION 319.92 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



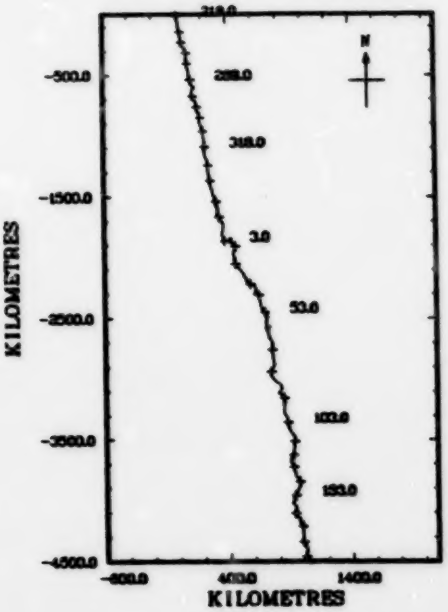
```
HISTOGRAM OF CURRENT SPEED AT (788; 183M)         TIDAL RESIDUALS (M/SEC)
 HAMILTON BANK
 CRUISE    86021.   STATION      788.    LAT   54.1820    LONG   50.1512
 INSTRUMENT 820          BOTTOM DEPTH 2483.0 METRES
 SAMPLED EACH     3600. SECS      START TIME  13:59:55 Z    2/ 8/  86

TOTAL NO. OF SAMPLES   8340
NO. OUT OF RANGE          0

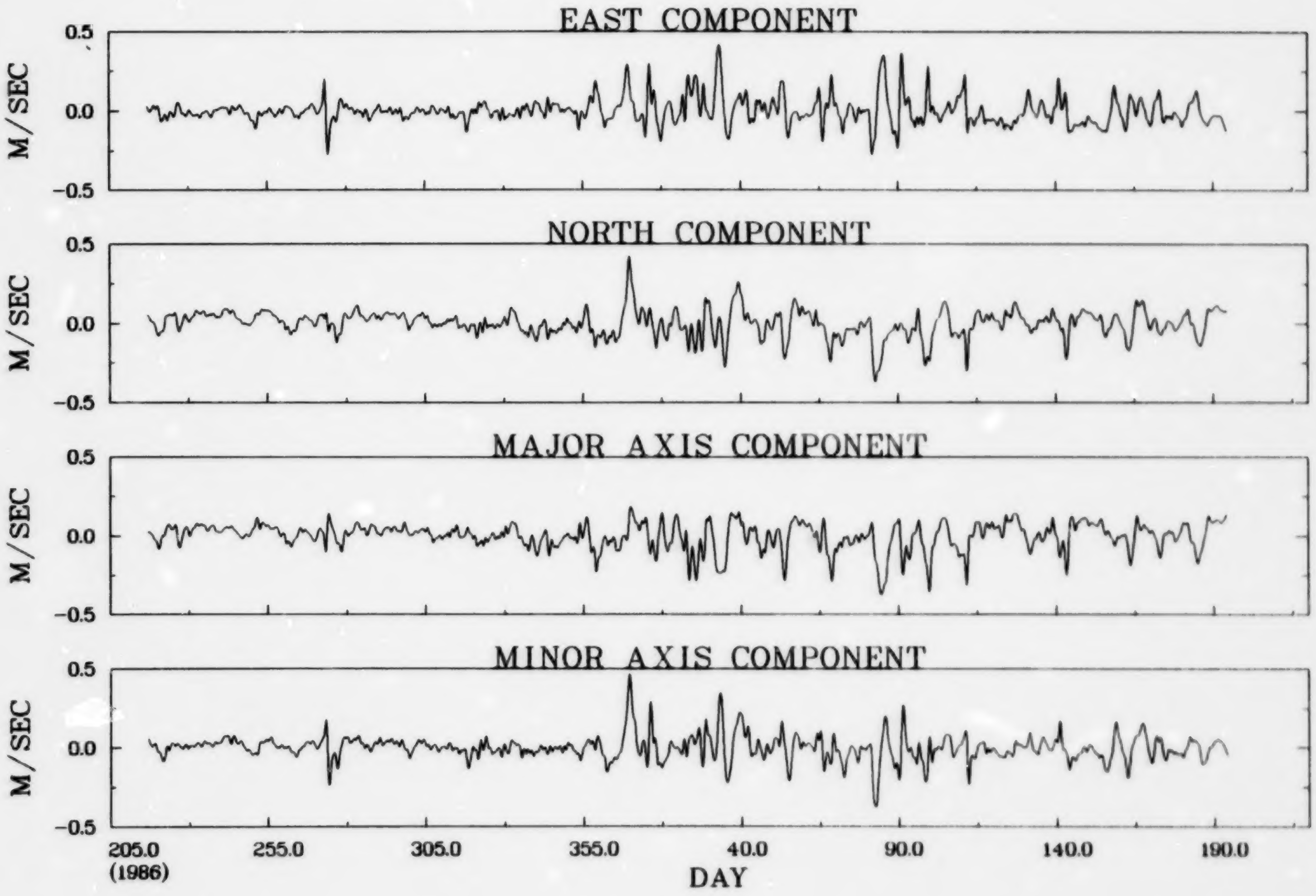

        BAND          NUMBER  PER
                              CENT

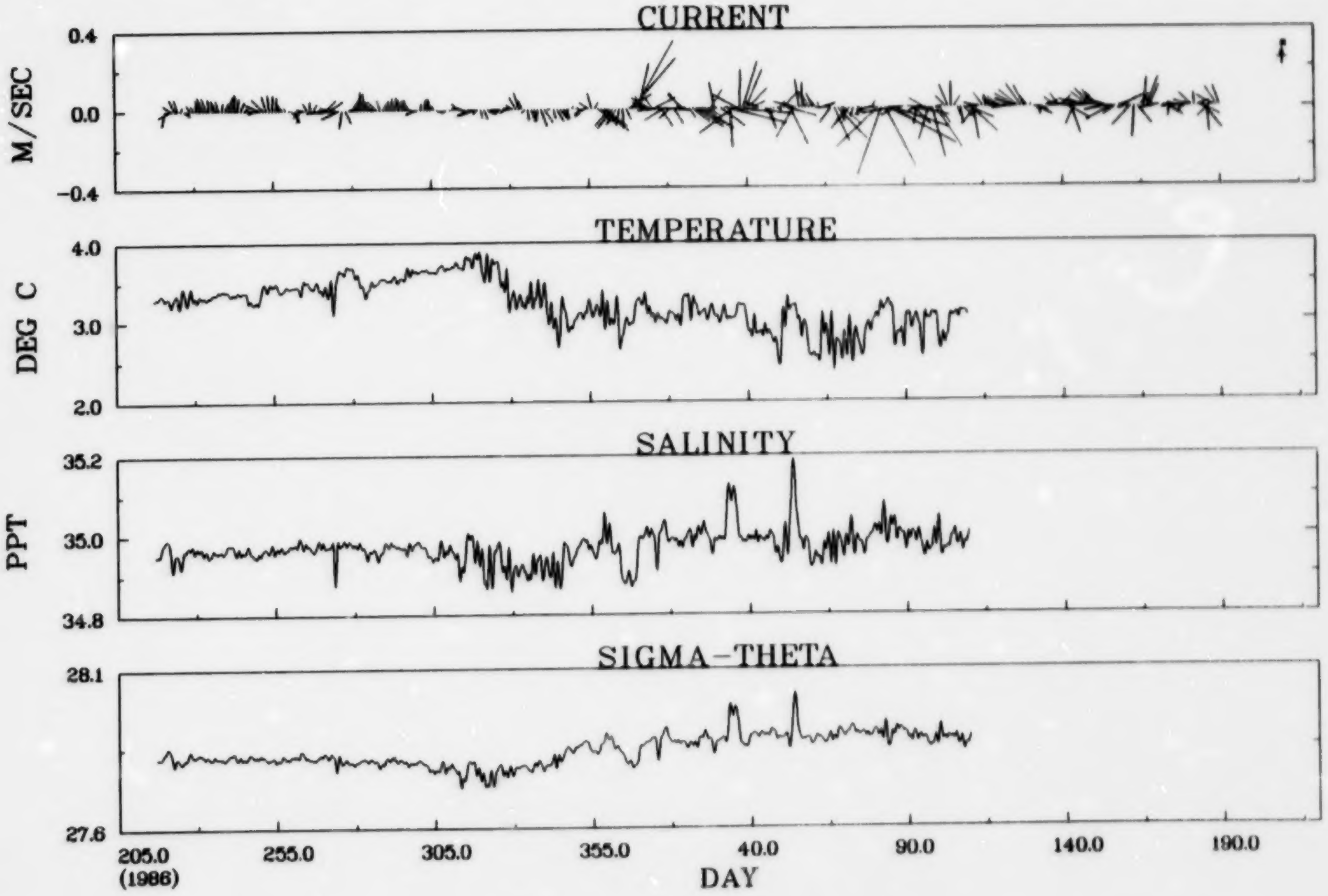

    ( 0.00,   .02)      56      .7 ***
    (  .02,   .04)     146     1.8 *******
    (  .04,   .06)     229     2.7 ***********
    (  .06,   .08)     446     5.3 *********************
    (  .08,   .10)     707     8.5 **********************************
    (  .10,   .12)     819     9.8 ***************************************
    (  .12,   .14)     951    11.4 **********************************************
    (  .14,   .16)     886    10.6 ******************************************
    (  .16,   .18)     754     9.0 ************************************
    (  .18,   .20)     702     8.4 **********************************
    (  .20,   .22)     640     7.7 *******************************
    (  .22,   .24)     440     5.3 *********************
    (  .24,   .26)     354     4.2 *****************
    (  .26,   .28)     257     3.1 ************
    (  .28,   .30)     215     2.6 **********
    (  .30,   .32)     129     1.5 ******
    (  .32,   .34)     108     1.3 *****
    (  .34,   .36)      77      .9 ****
    (  .36,   .38)      67      .8 ***
    (  .38,   .40)      64      .8 ***
    (  .40,   .42)      72      .9 ****
    (  .42,   .44)      53      .6 ***
    (  .44,   .46)      49      .6 **
    (  .46,   .48)      33      .4 **
    (  .48,   .50)      33      .4 **
    (  .50,   .52)      22      .3 *
    (  .52,   .54)      19      .2 *
    (  .54,   .56)       8      .1
    (  .56,   .58)       4      .0
```

STN. 788,   183 M.



CM(788; 183M) - RESIDUALS
POSITION 54.182 N 50.151 W





CM(788; 183M) – RESIDUALS
POSITION 54.182 N 50.151 W

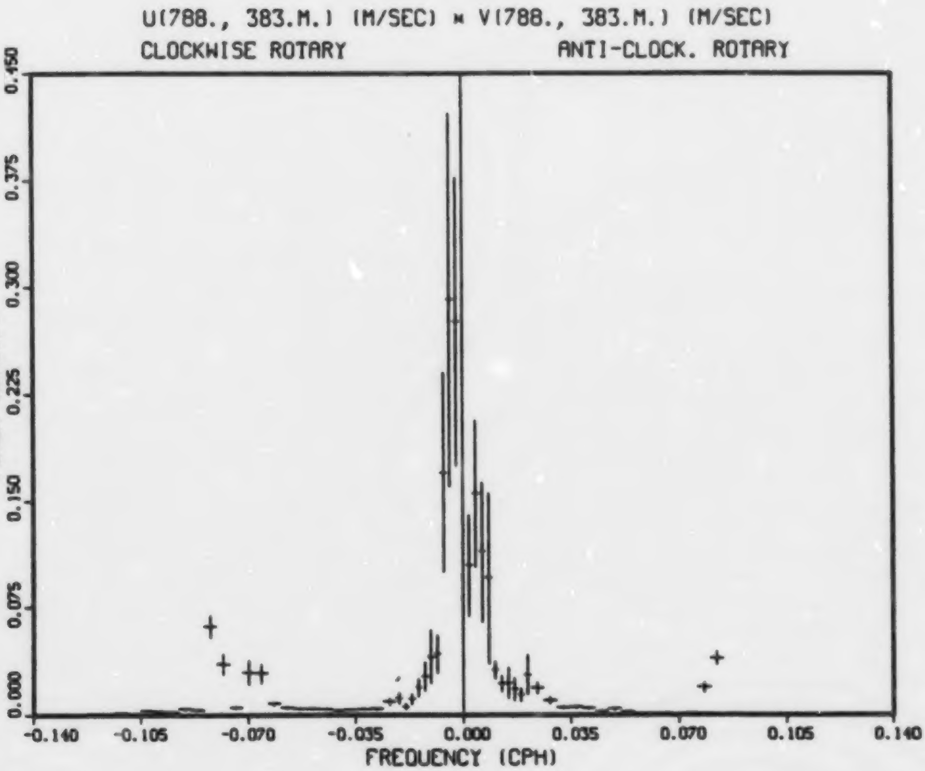
CM(788; 383M) - RESIDUAL STATISTICS

POSITION	54.182 N 50.151 W
BOTTOM DEPTH	2483.0 M
DURATION	162.5 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	2.89	3.80	3.44	.15
SALINITY	PPT	34.79	34.91	34.88	.02
SIGMA-THETA	KG/M**3	27.70	27.79	27.75	.01
N-S COMPONENT	CM/S	-31.45	20.00	-12.62	5.58
E-W COMPONENT	CM/S	-17.15	30.38	4.31	4.52
MAJOR AXIS	CM/S	-30.29	21.66	-12.17	5.58
MINOR AXIS	CM/S	-15.35	30.67	5.45	4.51

MAJOR AXIS ORIENTATION 5.26 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



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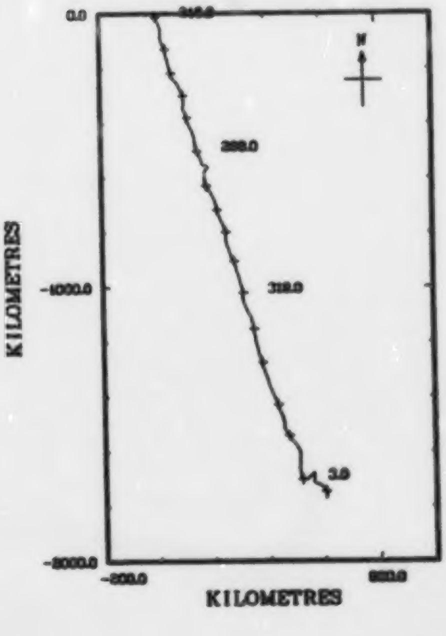
HISTOGRAM OF CURRENT SPEED AT (788; 383M)          TIDAL RESIDUALS (M/SEC)
 HAMILTON BANK
 CRUISE    86021.   STATION      788.    LAT   54.1820    LONG   58.1512
 INSTRUMENT 1946          BOTTOM DEPTH 2483.0 METRES
 SAMPLED EACH      3600. SECS       START TIME  13:59:55 Z    2/ 8/  86

TOTAL NO. OF SAMPLES   4021
NO. OUT OF RANGE          0

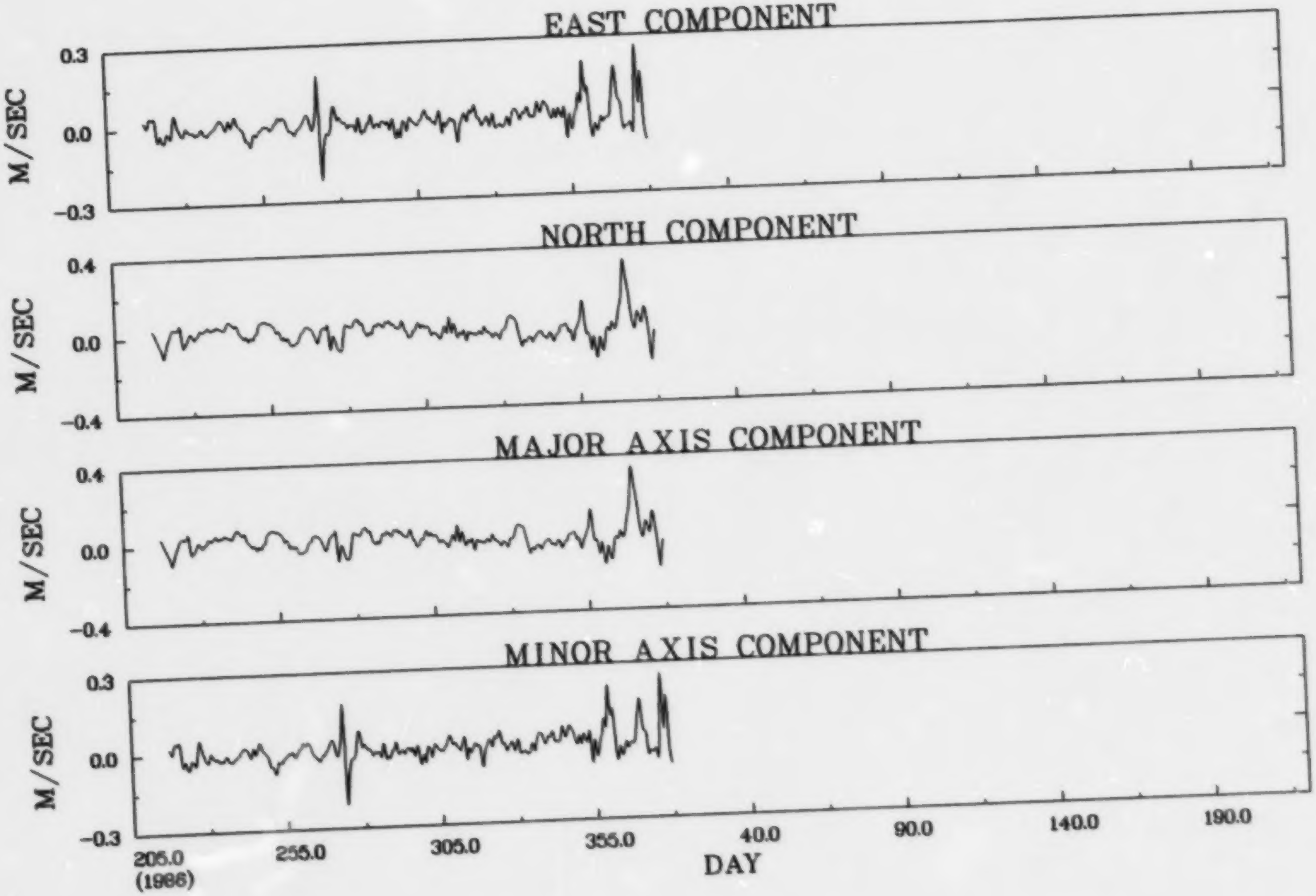

        BAND          NUMBER  PER
                              CENT

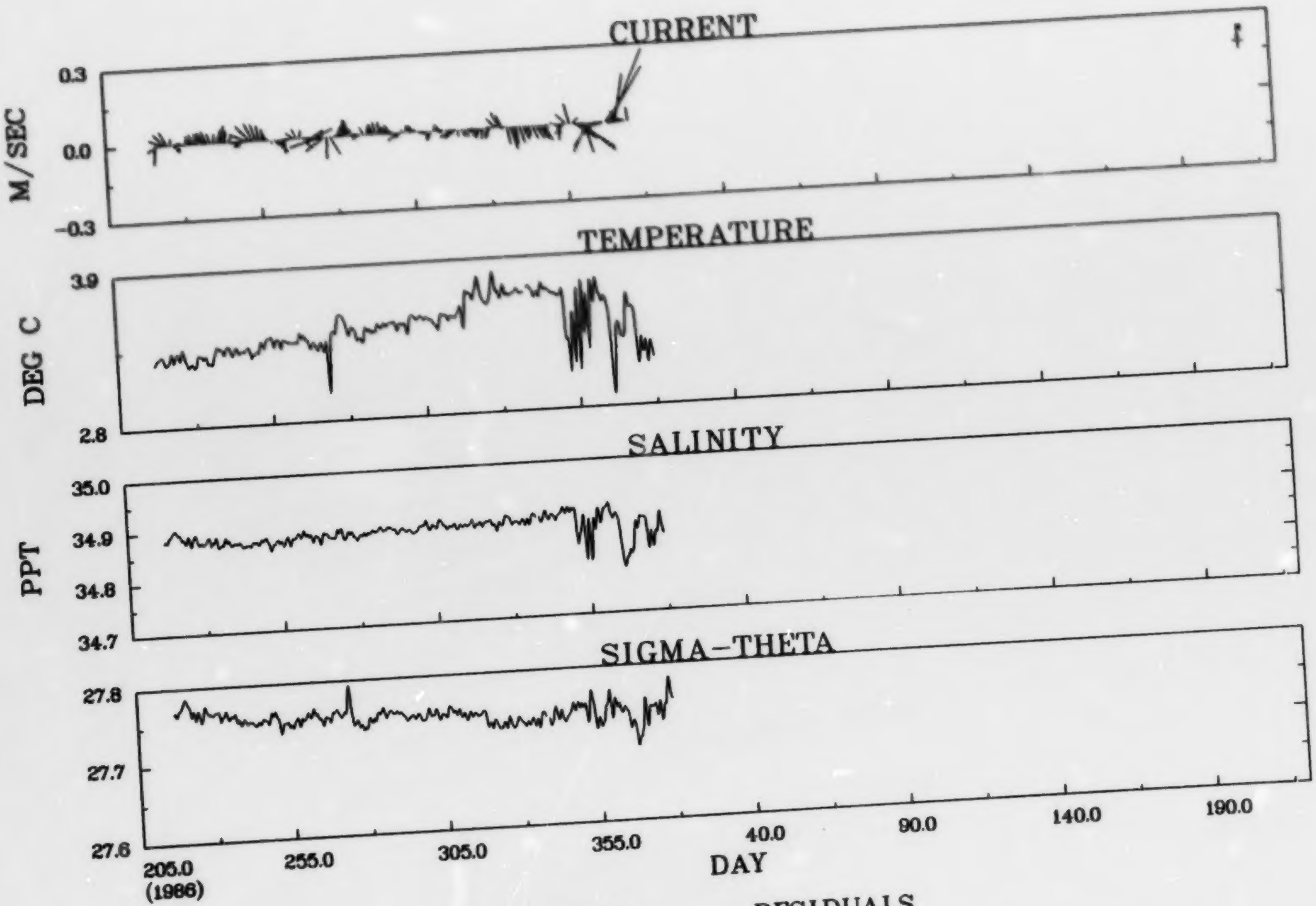

     ( 0.00,    .02)      4      .1
     (  .02,    .04)     13      .3 *
     (  .04,    .06)     71     1.8 *****
     (  .06,    .08)    279     6.9 ********************
     (  .08,    .10)    554    13.8 ****************************************
     (  .10,    .12)    633    15.7 *********************************************
     (  .12,    .14)    554    13.8 ****************************************
     (  .14,    .16)    537    13.4 **************************************
     (  .16,    .18)    439    10.9 *******************************
     (  .18,    .20)    318     7.9 ***********************
     (  .20,    .22)    241     6.0 *****************
     (  .22,    .24)    137     3.4 **********
     (  .24,    .26)     79     2.0 ******
     (  .26,    .28)     36      .9 ***
     (  .28,    .30)     47     1.2 ***
     (  .30,    .32)     38      .9 ***
     (  .32,    .34)     16      .4 *
     (  .34,    .36)     12      .3 *
     (  .36,    .38)      8      .2 *
     (  .38,    .40)      2      .0
     (  .40,    .42)      3      .1
```

STN. 788,   383 M.

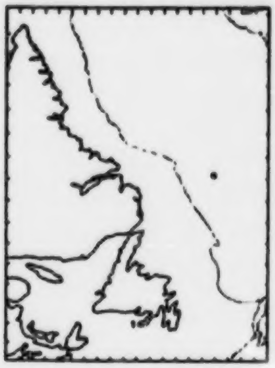


CM(788; 383M) – RESIDUALS
POSITION 54.182 N 50.151 W





CM(788; 383M) – RESIDUALS
POSITION 54.182 N 50.151 W



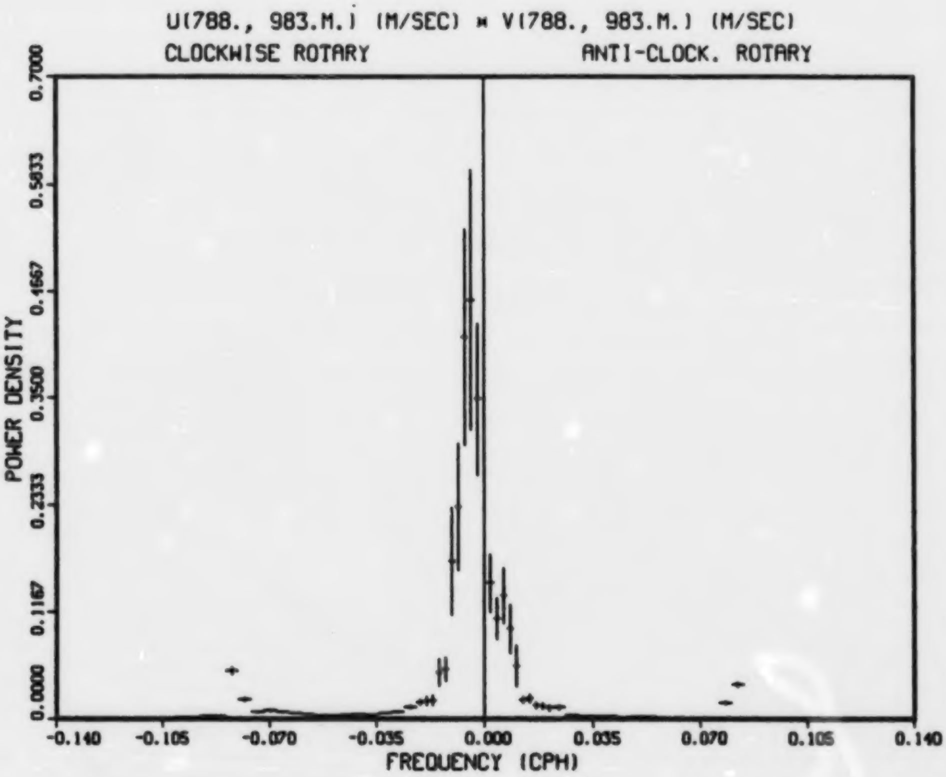
CM(788; 983M) - RESIDUAL STATISTICS

POSITION	54.182 N 50.151 W
BOTTOM DEPTH	2483.0 M
DURATION	286.5 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	3.08	3.50	3.30	.08
SALINITY	PPT	34.87	35.06	34.92	.02
SIGMA-THETA	KG/M**3	27.75	27.92	27.80	.02
N-S COMPONENT	CM/S	-40.25	10.44	-12.67	6.14
E-W COMPONENT	CM/S	-15.25	39.63	3.29	4.98
MAJOR AXIS	CM/S	-42.96	6.95	-13.09	6.21
MINOR AXIS	CM/S	-21.52	36.10	.12	4.90

MAJOR AXIS ORIENTATION 345.96 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



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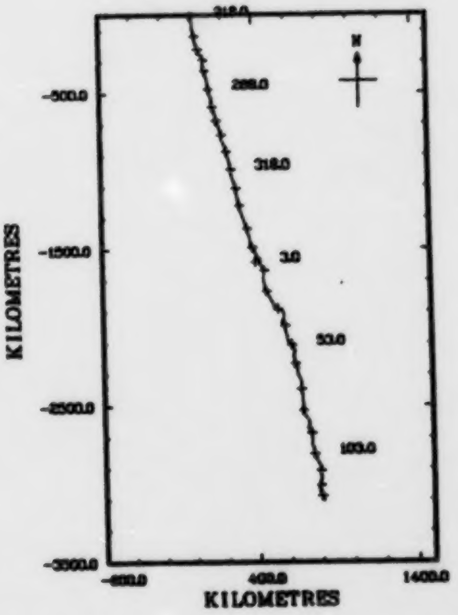
HISTOGRAM OF CURRENT SPEED AT (788; 983M)          TIDAL RESIDUALS (M/SEC)
 HAMILTON BANK
 CRUISE    86021.   STATION       788.    LAT   54.1820    LONG   50.1512
 INSTRUMENT 4351          BOTTOM DEPTH 2483.0 METRES
 SAMPLED EACH     3600. SECS      START TIME  13:59:55 Z    2/ 8/  86

TOTAL NO. OF SAMPLES   6950
NO. OUT OF RANGE          0

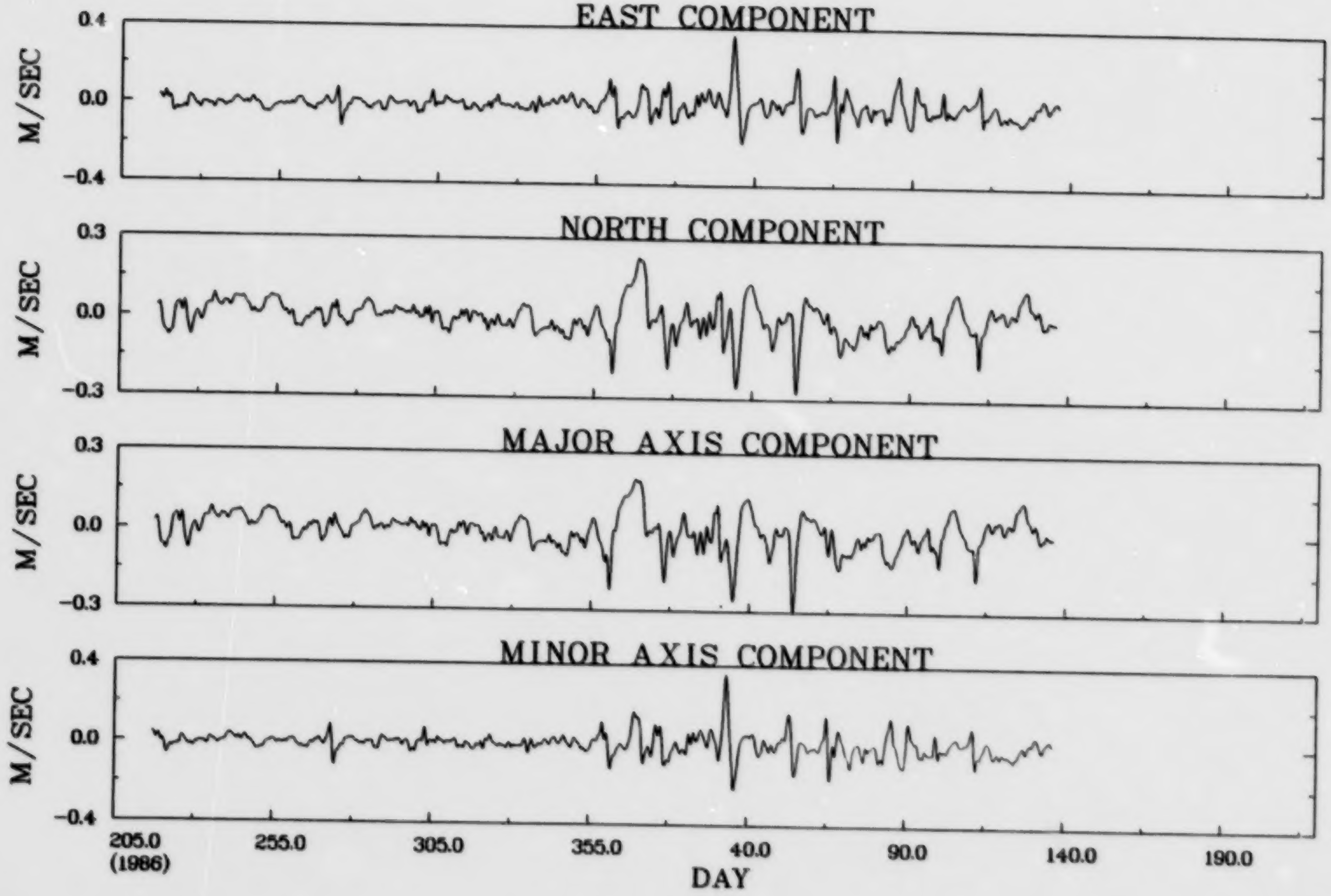

         BAND         NUMBER  PER
                              CENT

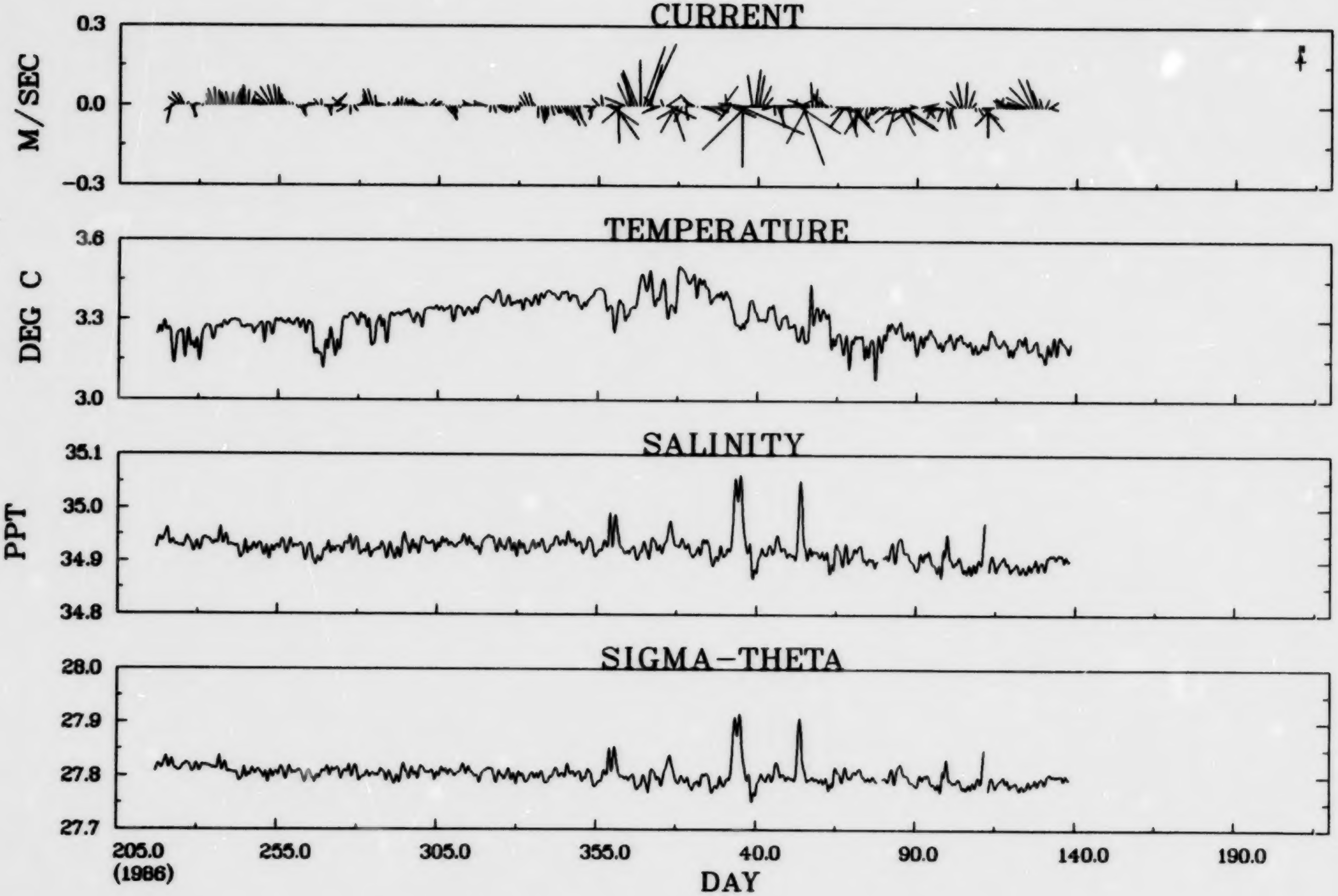

    ( 0.00,   .02)      59     .8 •••
    (  .02,   .04)     160    2.3 •••••••
    (  .04,   .06)     240    3.5 •••••••••••
    (  .06,   .08)     499    7.2 •••••••••••••••••••••••
    (  .08,   .10)     796   11.5 ••••••••••••••••••••••••••••••••••••
    (  .10,   .12)    1028   14.8 •••••••••••••••••••••••••••••••••••••••••••••••
    (  .12,   .14)    1065   15.3 ••••••••••••••••••••••••••••••••••••••••••••••••
    (  .14,   .16)     891   12.8 ••••••••••••••••••••••••••••••••••••••••
    (  .16,   .18)     768   11.1 •••••••••••••••••••••••••••••••••••
    (  .18,   .20)     520    7.5 ••••••••••••••••••••••••
    (  .20,   .22)     323    4.6 •••••••••••••••
    (  .22,   .24)     191    2.7 •••••••••
    (  .24,   .26)     111    1.6 •••••
    (  .26,   .28)      56     .8 •••
    (  .28,   .30)      57     .8 •••
    (  .30,   .32)      48     .7 ••
    (  .32,   .34)      31     .4 •
    (  .34,   .36)      32     .5 •
    (  .36,   .38)      24     .3 •
    (  .38,   .40)      18     .3 •
    (  .40,   .42)      14     .2 •
    (  .42,   .44)      10     .1
    (  .44,   .46)       8     .1
    (  .46,   .48)       1     .0
```

STN. 788, 983 M.

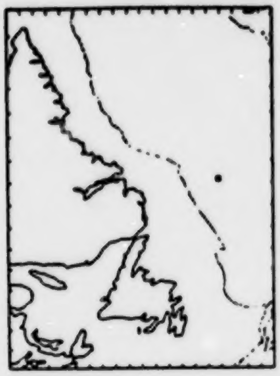


CM(788; 983M) - RESIDUALS
POSITION 54.182 N 50.151 W





CM(788; 983M) – RESIDUALS
POSITION 54.182 N 50.151 W



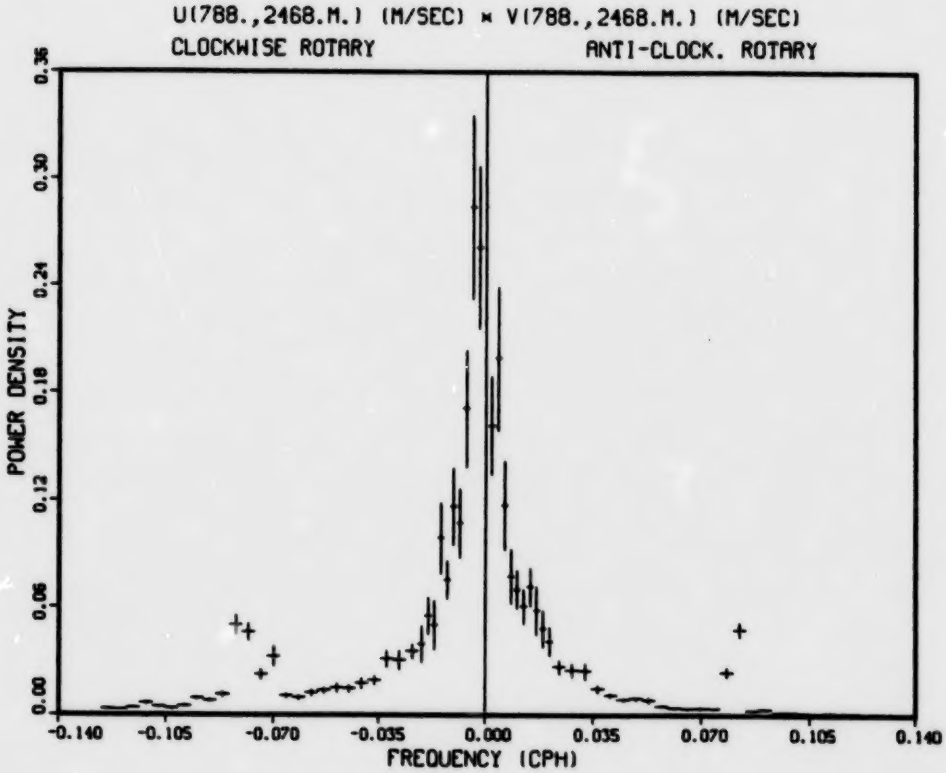
CM(788;2468M) - RESIDUAL STATISTICS

POSITION	54.182 N 50.151 W
BOTTOM DEPTH	2483.0 M
DURATION	351.0 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	2.07	2.83	2.57	.12
SALINITY	PPT	********	********	********	********
SIGMA-THETA	KG/M**3	********	********	********	********
N-S COMPONENT	CM/S	-32.91	18.13	-9.26	6.52
E-W COMPONENT	CM/S	-10.90	24.44	4.81	4.11
MAJOR AXIS	CM/S	-38.94	12.71	-10.40	6.94
MINOR AXIS	CM/S	-12.15	16.43	.79	3.35

MAJOR AXIS ORIENTATION 336.94 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



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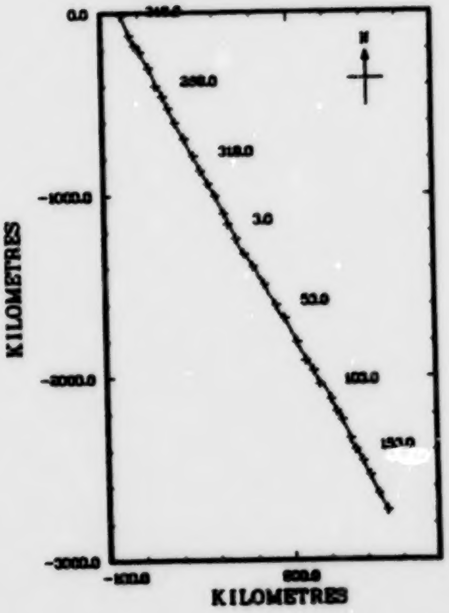
HISTOGRAM OF CURRENT SPEED AT (788;2468M)          TIDAL RESIDUALS (M/SEC)
 HAMILTON BANK
 CRUISE    86021.   STATION      788.    LAT   54.1820    LONG   50.1512
 INSTRUMENT 818            BOTTOM DEPTH 2483.0 METRES
 SAMPLED EACH     3600. SECS      START TIME  13:59:55 Z    2/ 8/  86

TOTAL NO. OF SAMPLES   8340
NO. OUT OF RANGE          0

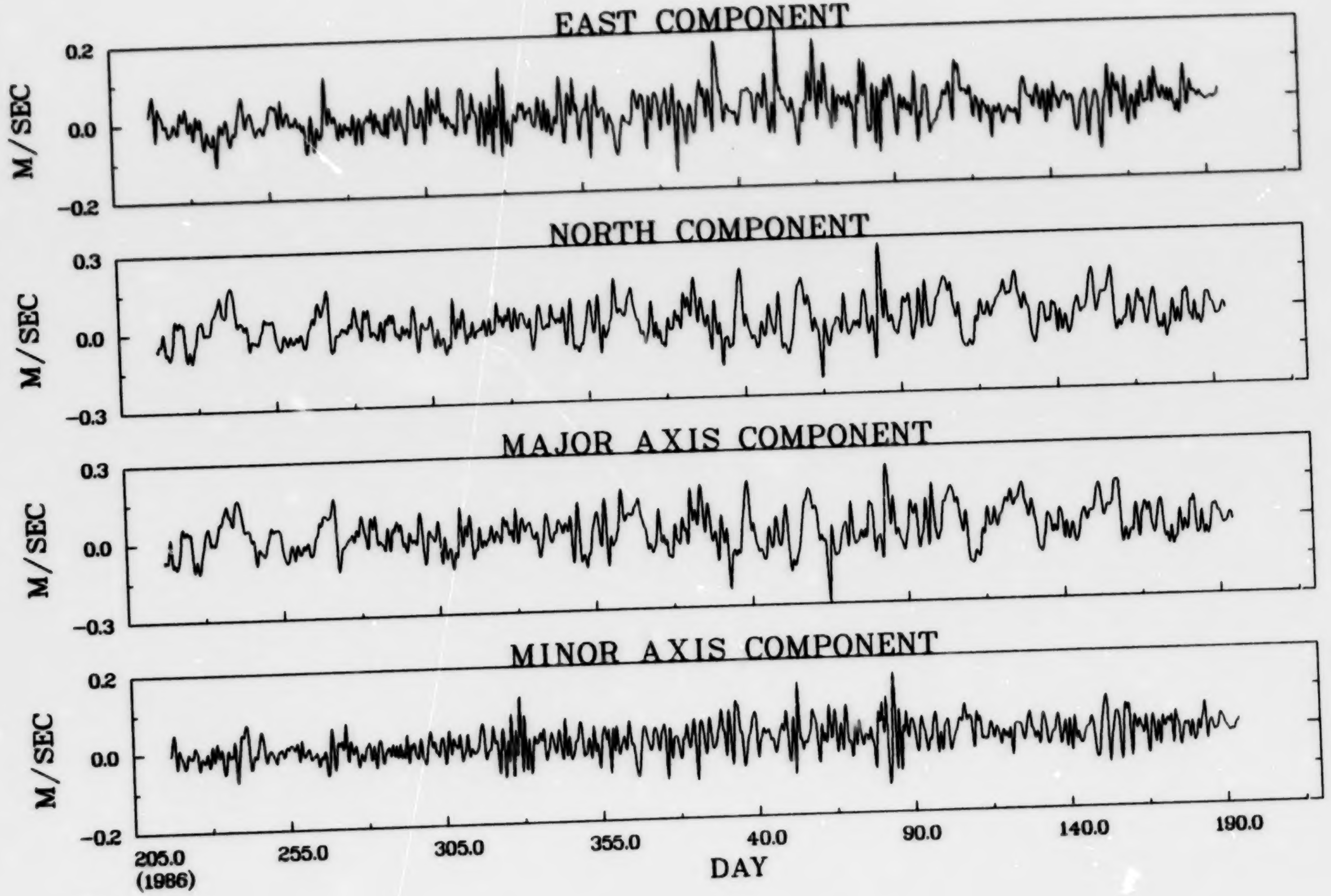

          BAND          NUMBER  PER
                                CENT

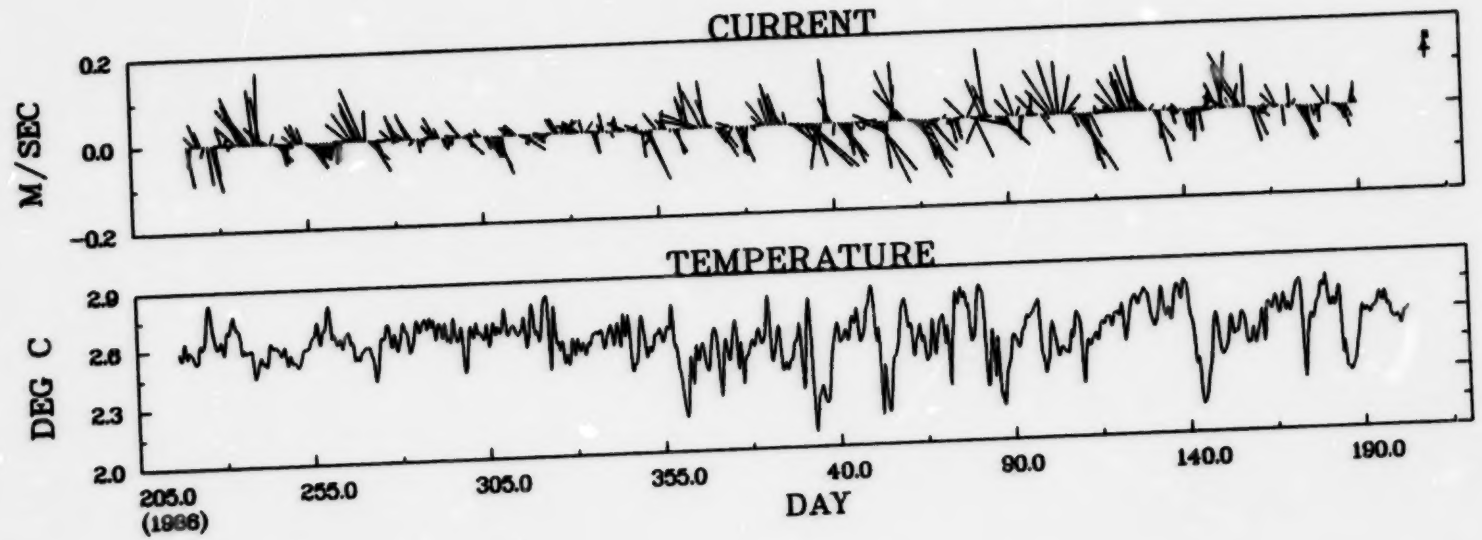

     ( 0.00,   .02)     108    1.3 *****
     (  .02,   .04)     468    5.6 **********************
     (  .04,   .06)     836   10.0 ****************************************
     (  .06,   .08)    1030   12.4 *************************************************
     (  .08,   .10)    1062   12.7 **************************************************
     (  .10,   .12)     900   10.8 *******************************************
     (  .12,   .14)     897   10.8 *******************************************
     (  .14,   .16)     792    9.5 **************************************
     (  .16,   .18)     726    8.7 ***********************************
     (  .18,   .20)     563    6.8 ***************************
     (  .20,   .22)     422    5.1 ********************
     (  .22,   .24)     252    3.0 ************
     (  .24,   .26)     137    1.6 ******
     (  .26,   .28)      59     .7 ***
     (  .28,   .30)      26     .3 *
     (  .30,   .32)      20     .2 *
     (  .32,   .34)      11     .1
     (  .34,   .36)      13     .2 *
     (  .36,   .38)       6     .1
     (  .38,   .40)       5     .1
     (  .40,   .42)       2     .0
     (  .42,   .44)       0    0.0
     (  .44,   .46)       2     .0
     (  .46,   .48)       1     .0
     (  .48,   .50)       1     .0
     (  .50,   .52)       1     .0
```

STN. 788, 2468 M.



CM(788;2468M) - RESIDUALS
POSITION 54.182 N 50.151 W





CM(788;2468M) – RESIDUALS
POSITION 54.182 N 50.151 W

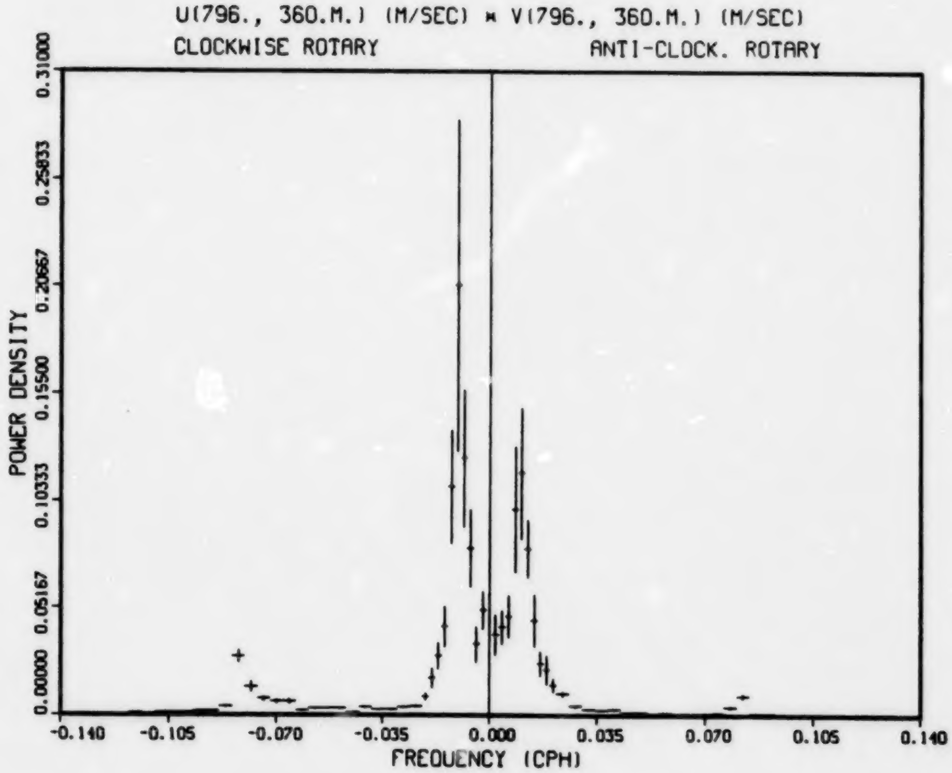
CM(796; 360M) - RESIDUAL STATISTICS

POSITION	51.665 N 52.994 W
BOTTOM DEPTH	360.0 M
DURATION	274.3 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	2.60	3.18	2.95	.11
SALINITY	PPT	34.48	34.70	34.60	.04
SIGMA-THETA	KG/M**3	27.46	27.64	27.57	.04
N-S COMPONENT	CM/S	-7.29	12.84	3.45	3.59
E-W COMPONENT	CM/S	-10.52	16.28	2.01	4.55
MAJOR AXIS	CM/S	-13.33	15.25	.65	4.69
MINOR AXIS	CM/S	-13.08	5.74	-3.94	3.41

MAJOR AXIS ORIENTATION 110.81 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL

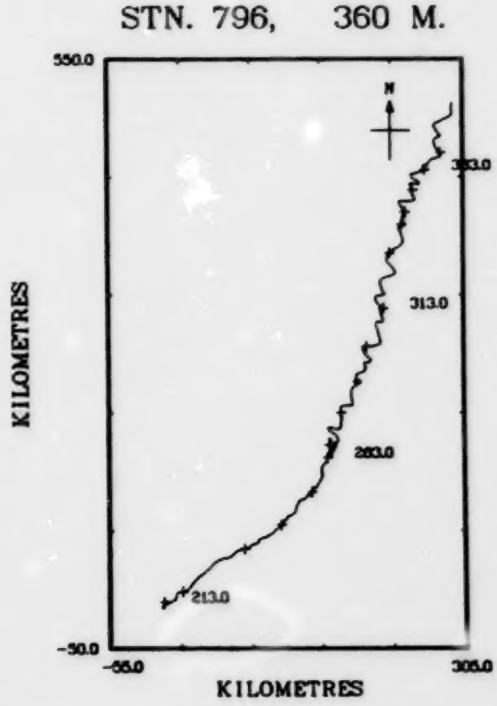


```
HISTOGRAM OF R(796; 360M)                            TIDAL RESIDUALS   (M/SEC)
 OFFSHORE OF ST. ANTHONY'S
 CRUISE    86021.   STATION      796.    LAT   51.6652    LONG   52.9937
 INSTRUMENT 1607         BOTTOM DEPTH  360.0 METRES
 SAMPLED EACH     3600. SECS      START TIME   4:59:55 Z   28/ 7/1986

TOTAL NO. OF SAMPLES   4150
NO. OUT OF RANGE          0

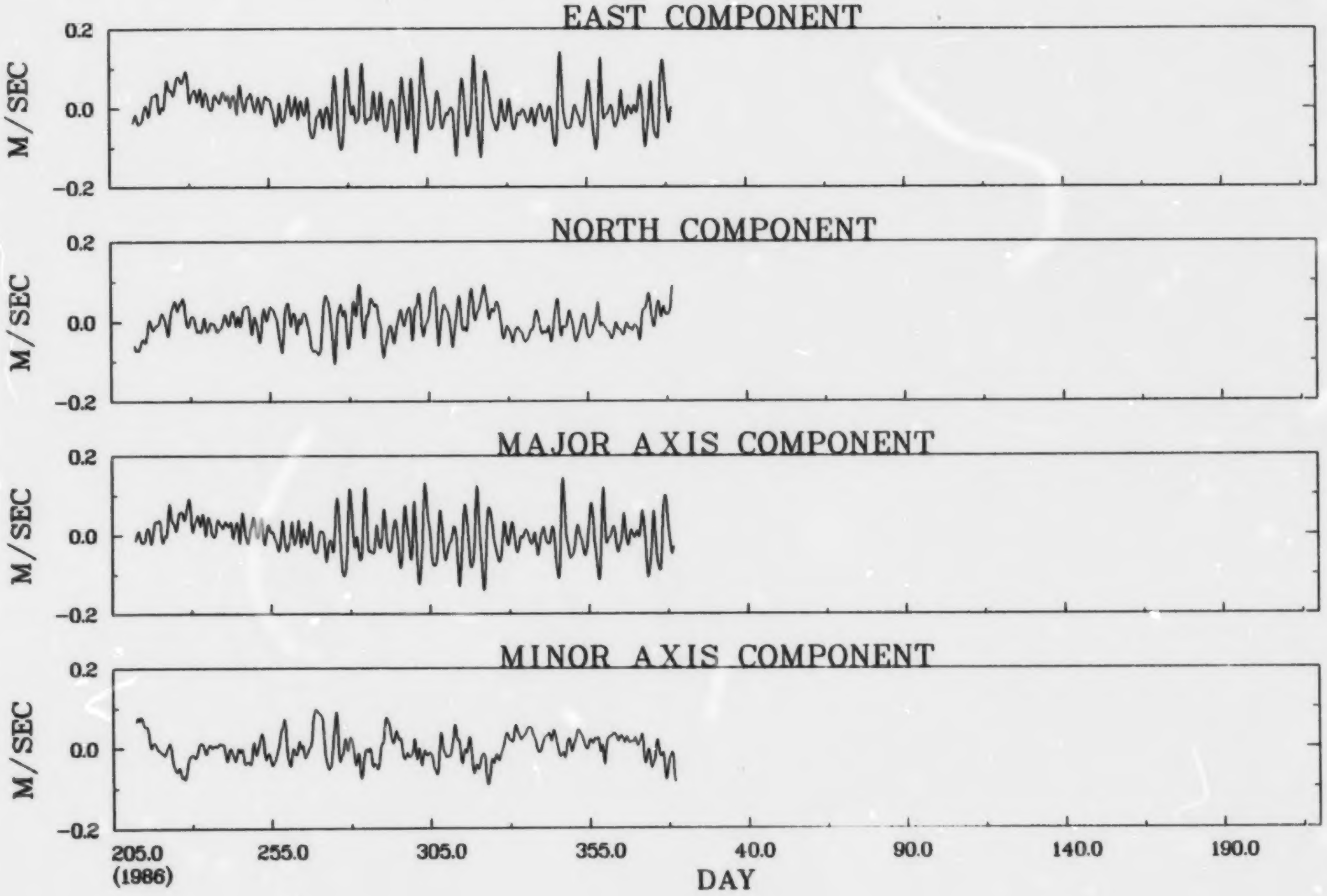
        BAND         NUMBER  PER
                             CENT

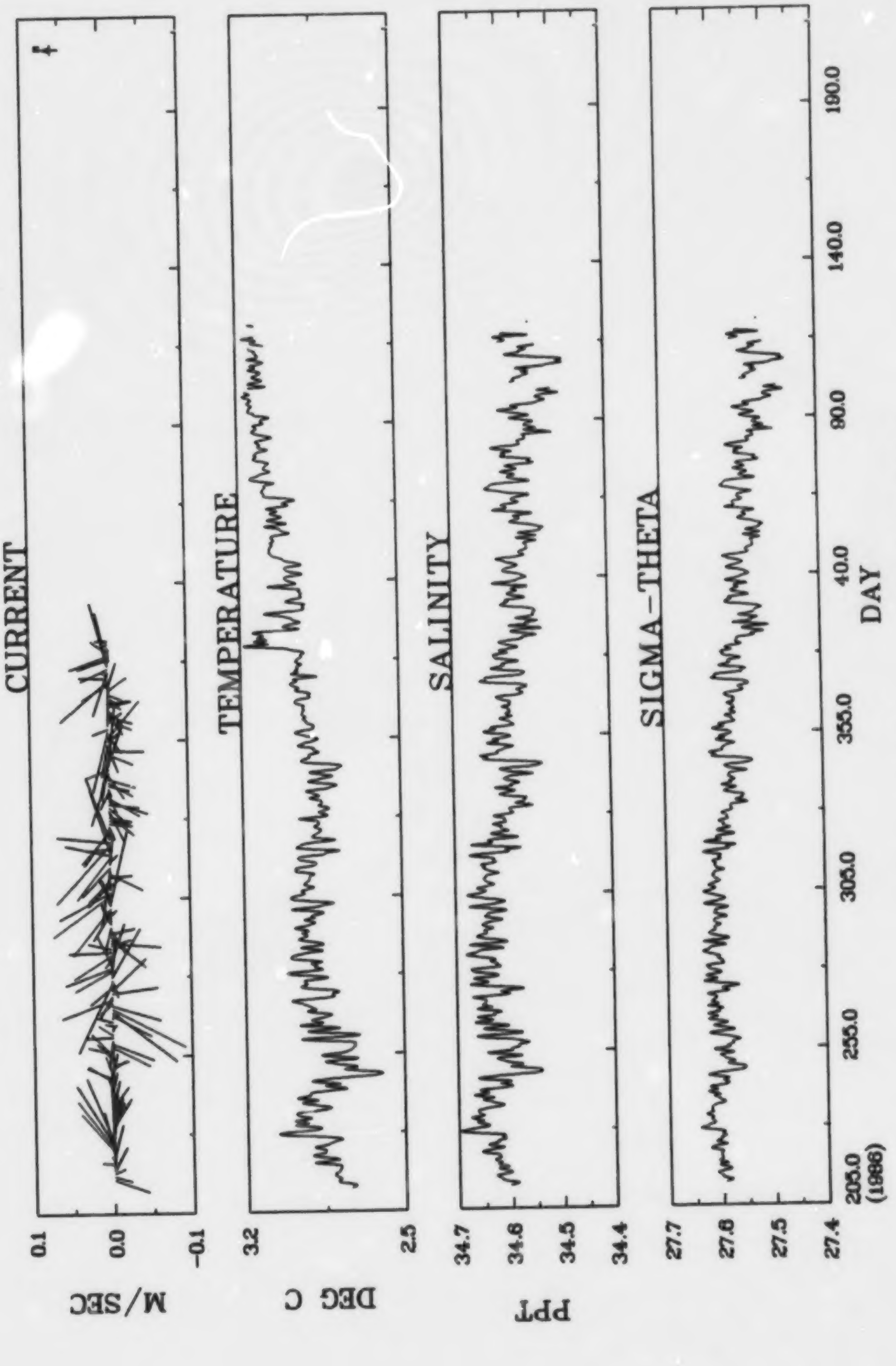

     ( 0.00,   .02)    419   10.1 •••••••••••••••••••••••
     (  .02,   .04)    791   19.1 ••••••••••••••••••••••••••••••••••••••••••••
     (  .04,   .06)    825   19.9 ••••••••••••••••••••••••••••••••••••••••••••••
     (  .06,   .08)    839   20.2 •••••••••••••••••••••••••••••••••••••••••••••••
     (  .08,   .10)    603   14.5 •••••••••••••••••••••••••••••••••
     (  .10,   .12)    347    8.4 •••••••••••••••••••
     (  .12,   .14)    197    4.7 •••••••••••
     (  .14,   .16)     88    2.1 •••••
     (  .16,   .18)     31     .7 ••
     (  .18,   .20)      7     .2
     (  .20,   .22)      3     .1
```



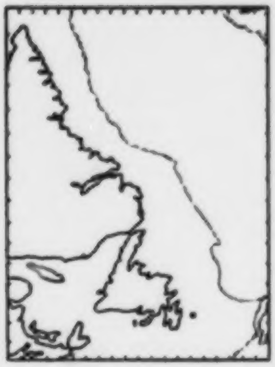
STN. 796,   360 M.

CM(796; 360M) – RESIDUALS
POSITION 51.665 N 52.994 W





CM(796; 360M) — RESIDUALS
POSITION 51.665 N 52.994 W



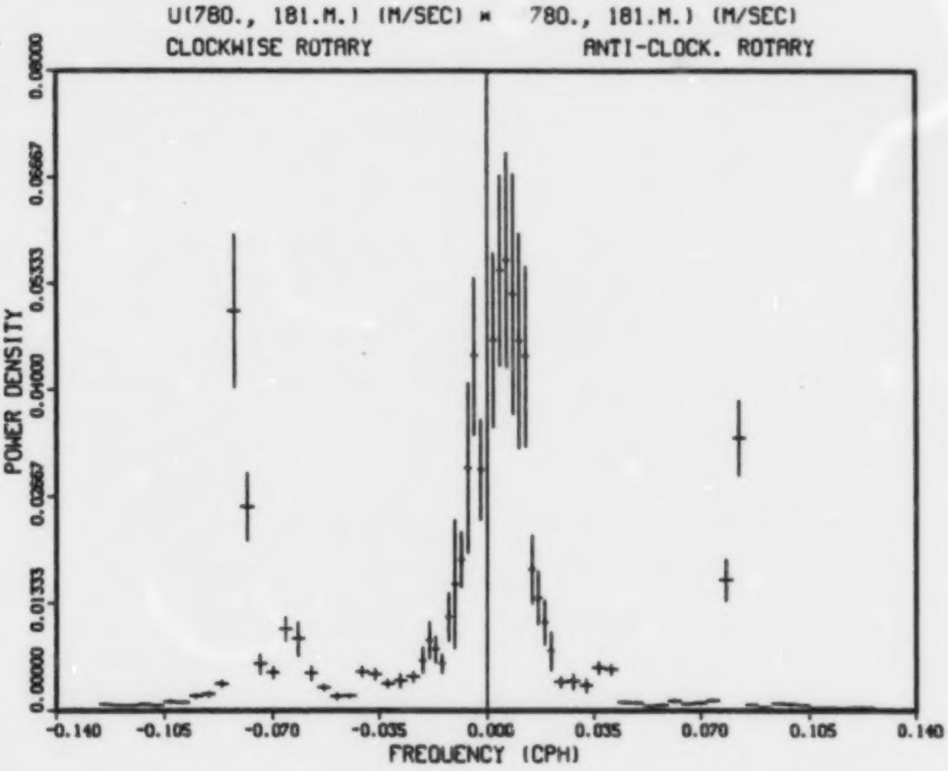
CM(780; 181M) - RESIDUAL STATISTICS

POSITION	47.402 N 51.802 W
BOTTOM DEPTH	182.0 M
DURATION	168.5 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	-1.43	-.25	-.87	.20
SALINITY	PPT	32.86	33.52	33.15	.14
SIGMA-THETA	KG/M**3	26.43	26.92	26.65	.11
N-S COMPONENT	CM/S	-14.50	9.43	-3.27	3.47
E-W COMPONENT	CM/S	-5.93	6.89	1.18	2.04
MAJOR AXIS	CM/S	-15.09	9.51	-3.48	3.63
MINOR AXIS	CM/S	-5.63	4.78	.02	1.74

MAJOR AXIS ORIENTATION 340.32 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL

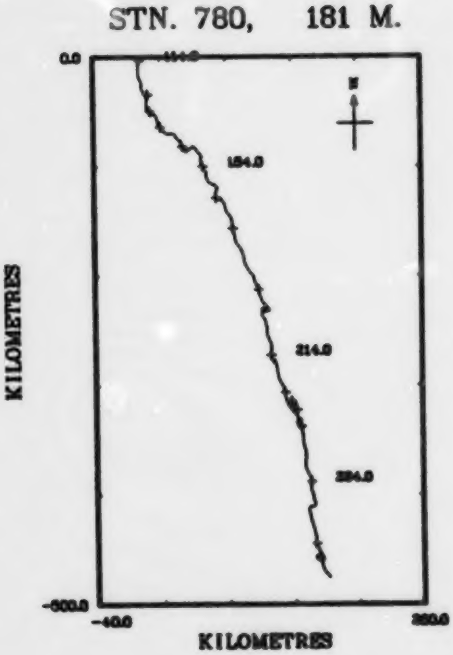


```
HISTOGRAM OF CURRENT SPEED AT (780; 181M)          TIDAL RESIDUALS (M/SEC)
GRAND BANK
 CRUISE    86005.   STATION      780.    LAT   47.4018    LONG   51.8018
 INSTRUMENT 4158          BOTTOM DEPTH  182.0 METRES
 SAMPLED EACH    10800. SECS      START TIME  20:59:55 Z   20/ 4/1986

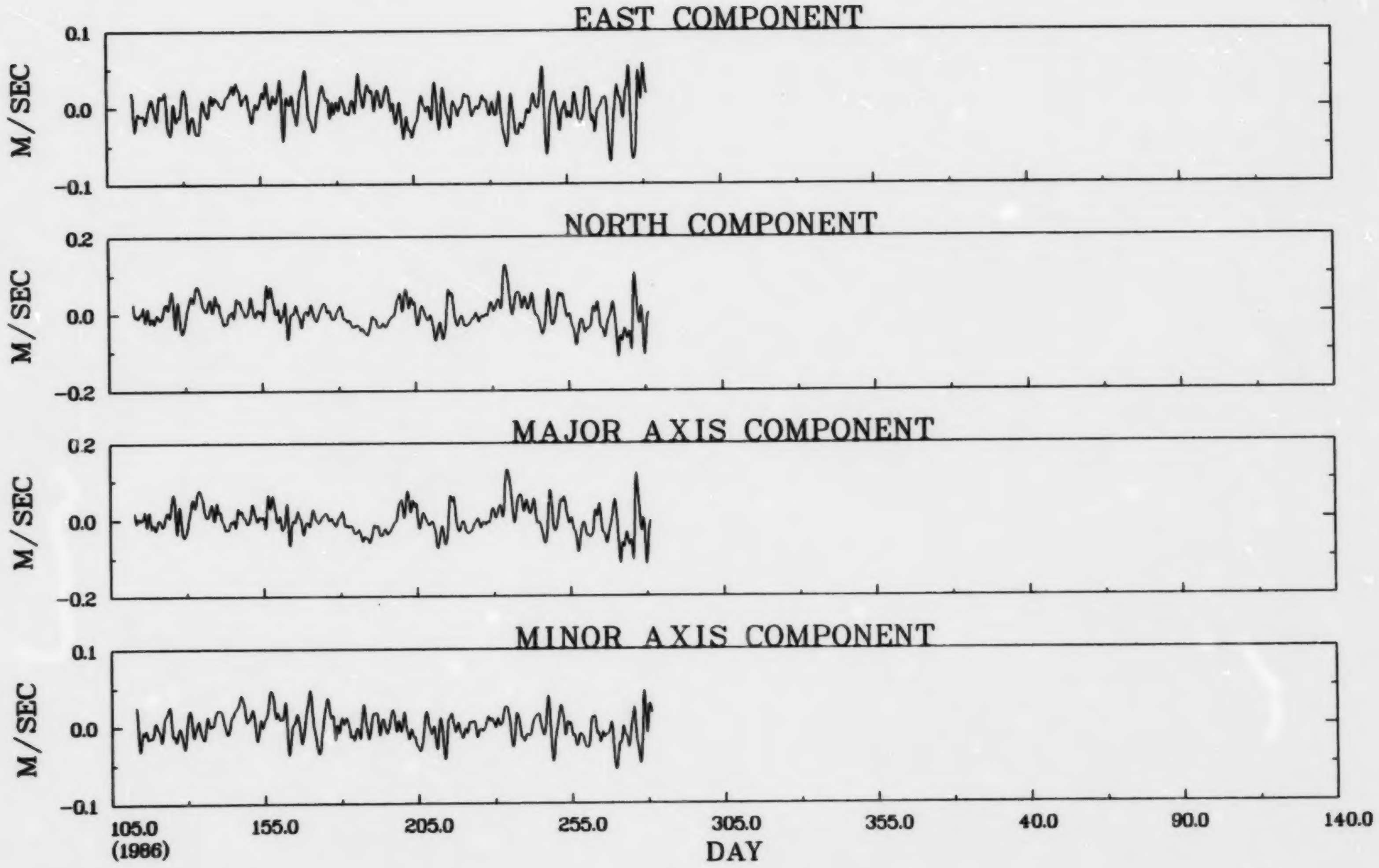
TOTAL NO. OF SAMPLES   1382
NO. OUT OF RANGE          0

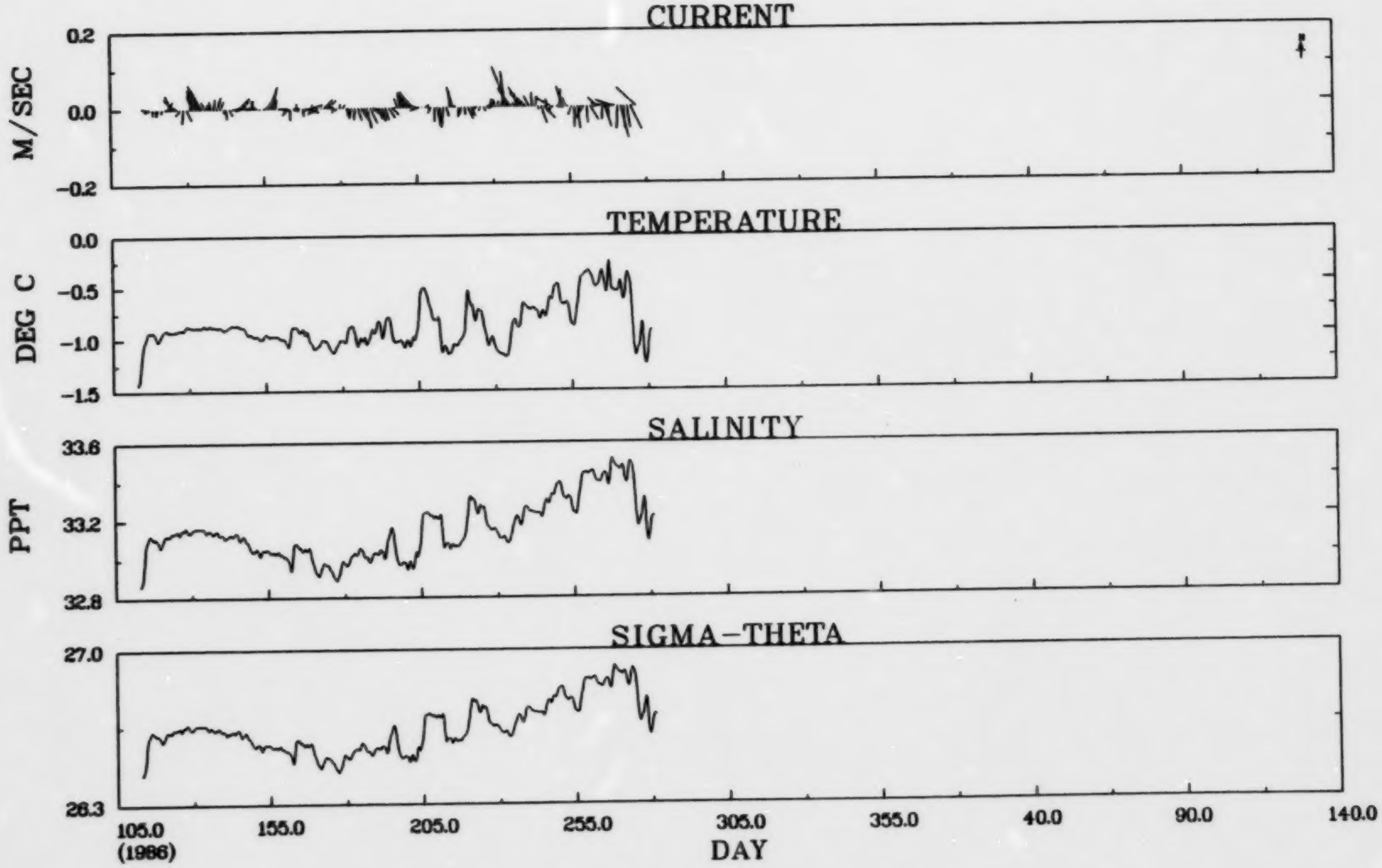

       BAND          NUMBER  PER
                             CENT


    ( 0.00,   .02)      72    5.2 *******
    (  .02,   .04)     406   29.4 **************************************
    (  .04,   .06)     476   34.4 *********************************************
    (  .06,   .08)     264   19.1 *************************
    (  .08,   .10)     102    7.4 **********
    (  .10,   .12)      41    3.0 ****
    (  .12,   .14)      12     .9 *
    (  .14,   .16)       2     .1
    (  .16,   .18)       6     .4 *
    (  .18,   .20)       1     .1
```

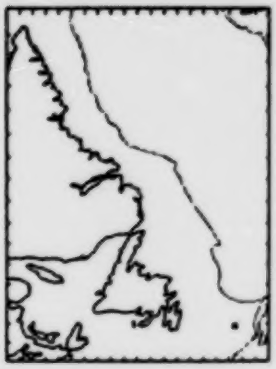


CM(780; 181M) – RESIDUALS
POSITION 47.402 N 51.802 W





CM(780; 181M) – RESIDUALS
POSITION 47.402 N 51.802 W



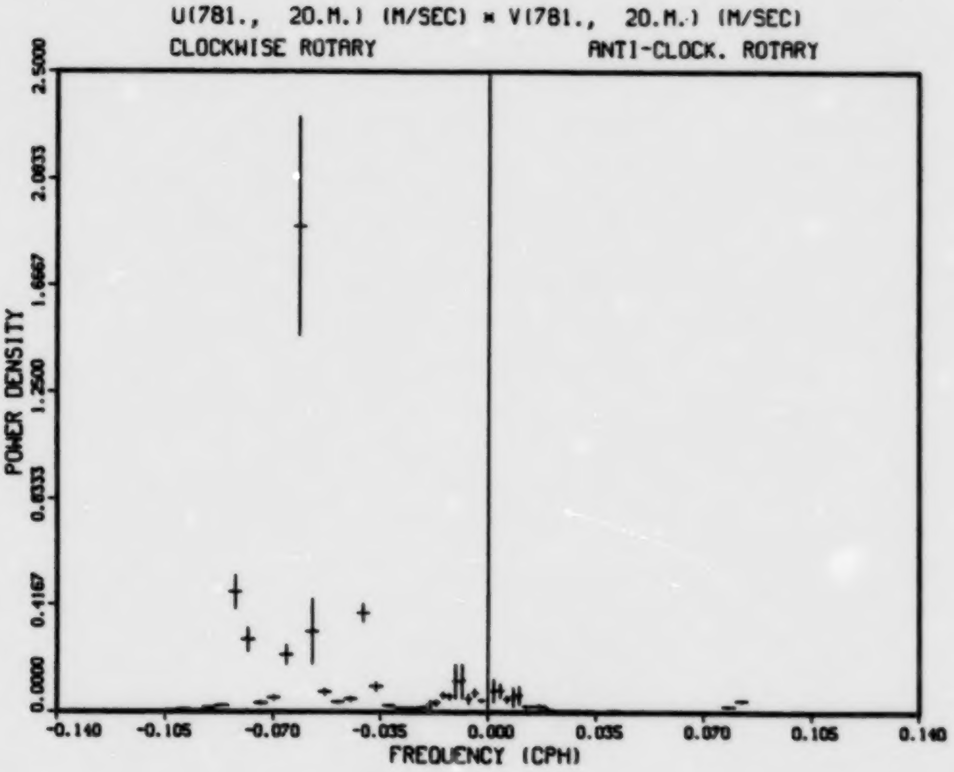
CM(781; 20M) - RESIDUAL STATISTICS

POSITION	46.859 N 48.718 W
BOTTOM DEPTH	90.0 M
DURATION	170.3 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	-.51	14.60	7.82	4.64
SALINITY	PPT	31.80	32.90	32.54	.31
SIGMA-THETA	KG/M**3	23.82	26.43	25.25	.85
N-S COMPONENT	CM/S	-26.07	13.44	-.03	4.31
E-W COMPONENT	CM/S	-38.36	12.93	-.15	4.54
MAJOR AXIS	CM/S	-40.66	13.32	-.14	4.64
MINOR AXIS	CM/S	-11.58	21.34	-.05	4.20

MAJOR AXIS ORIENTATION 60.49 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



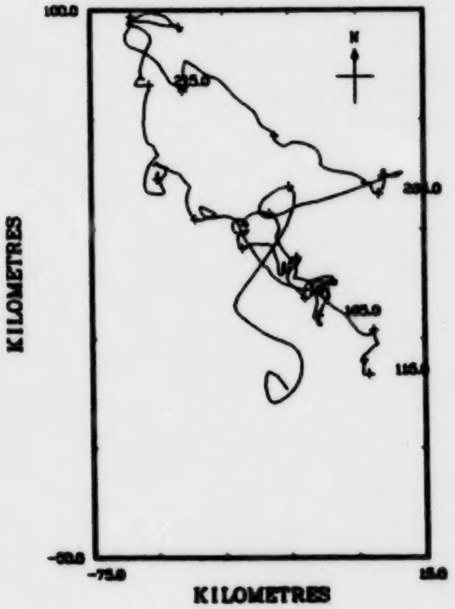
```
HISTOGRAM OF CURRENT SPEED AT (781:  20M)          TIDAL RESIDUALS (M/SEC)
 GRAND BANK
 CRUISE    86005.   STATION       781.     LAT   46.8590    LONG   48.7177
 INSTRUMENT 2664          BOTTOM DEPTH   90.0 METRES
 SAMPLED EACH      1800. SECS      START TIME  17:59:55 Z    21/ 4/1986

TOTAL NO. OF SAMPLES   8346
NO. OUT OF RANGE          0

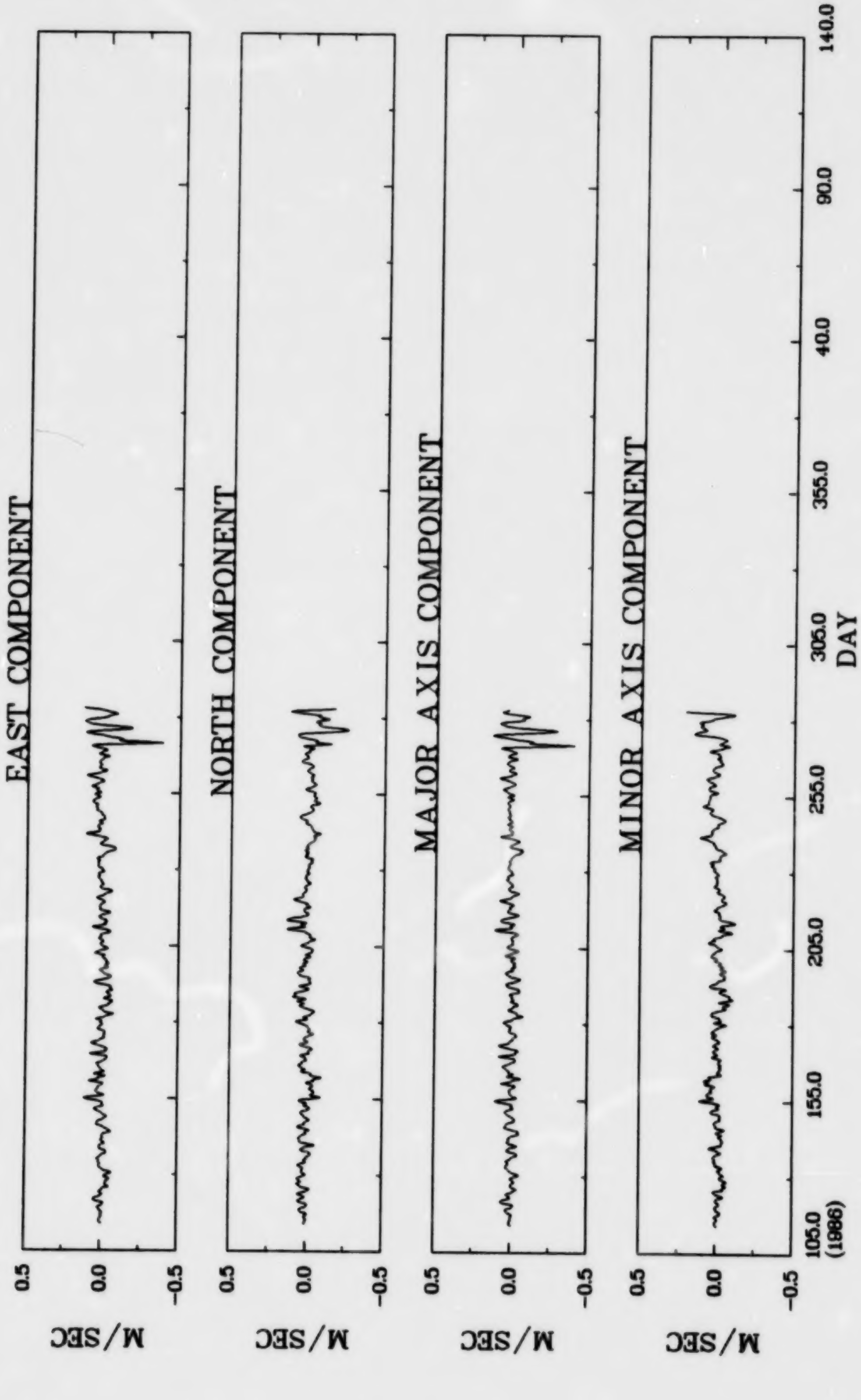

         BAND          NUMBER  PER
                               CENT

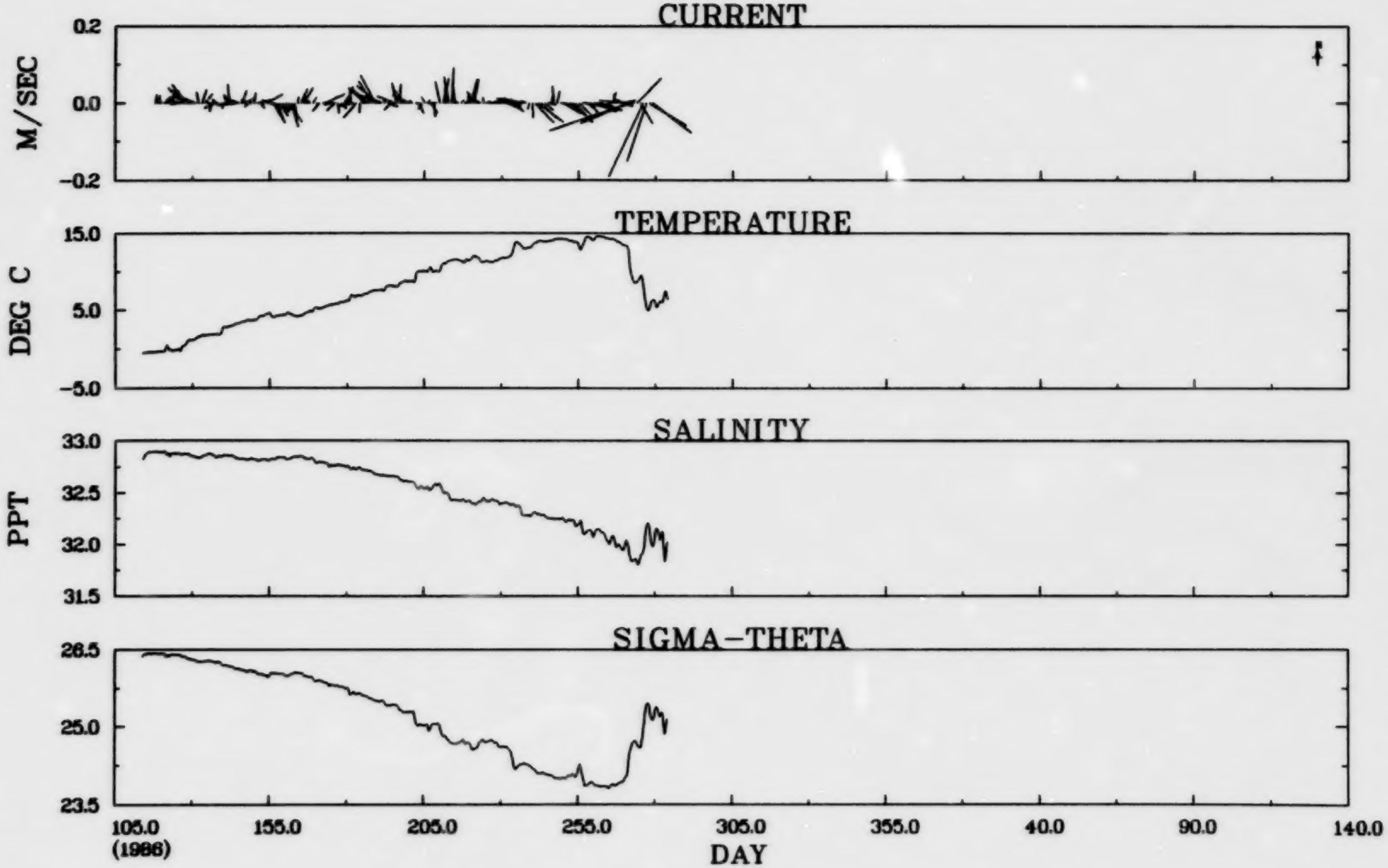

     ( 0.00,   .02)     408    4.9 *****************
     (  .02,   .04)     862   10.3 ************************************
     (  .04,   .06)    1016   12.2 ******************************************
     (  .06,   .08)    1152   13.8 ************************************************
     (  .08,   .10)    1044   12.5 *******************************************
     (  .10,   .12)     898   10.8 *************************************
     (  .12,   .14)     722    8.7 ******************************
     (  .14,   .16)     547    6.6 ***********************
     (  .16,   .18)     476    5.7 ********************
     (  .18,   .20)     300    3.6 ************
     (  .20,   .22)     222    2.7 *********
     (  .22,   .24)     183    2.2 ********
     (  .24,   .26)     147    1.8 ******
     (  .26,   .28)     110    1.3 *****
     (  .28,   .30)      44     .5 **
     (  .30,   .32)      51     .6 **
     (  .32,   .34)      45     .5 **
     (  .34,   .36)      27     .3 *
     (  .36,   .38)      22     .3 *
     (  .38,   .40)      11     .1
     (  .40,   .42)       8     .1
     (  .42,   .44)       8     .1
     (  .44,   .46)       5     .1
     (  .46,   .48)       7     .1
     (  .48,   .50)       2     .0
     (  .50,   .52)       4     .0
     (  .52,   .54)       0    0.0
     (  .54,   .56)       2     .0
     (  .56,   .58)       3     .0
     (  .58,   .60)       1     .0
     (  .60,   .62)       1     .0
     (  .62,   .64)       7     .1
     (  .64,   .66)       4     .0
     (  .66,   .68)       4     .0
     (  .68,   .70)       2     .0
     (  .70,   .72)       1     .0
```

STN. 781,   20 M.

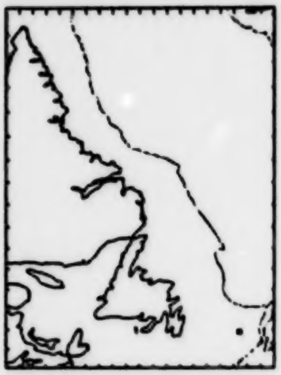


CM(781; 20M) - RESIDUALS
POSITION 46.859 N 48.718 W





CM(781; 20M) - RESIDUALS
POSITION 46.859 N 48.718 W



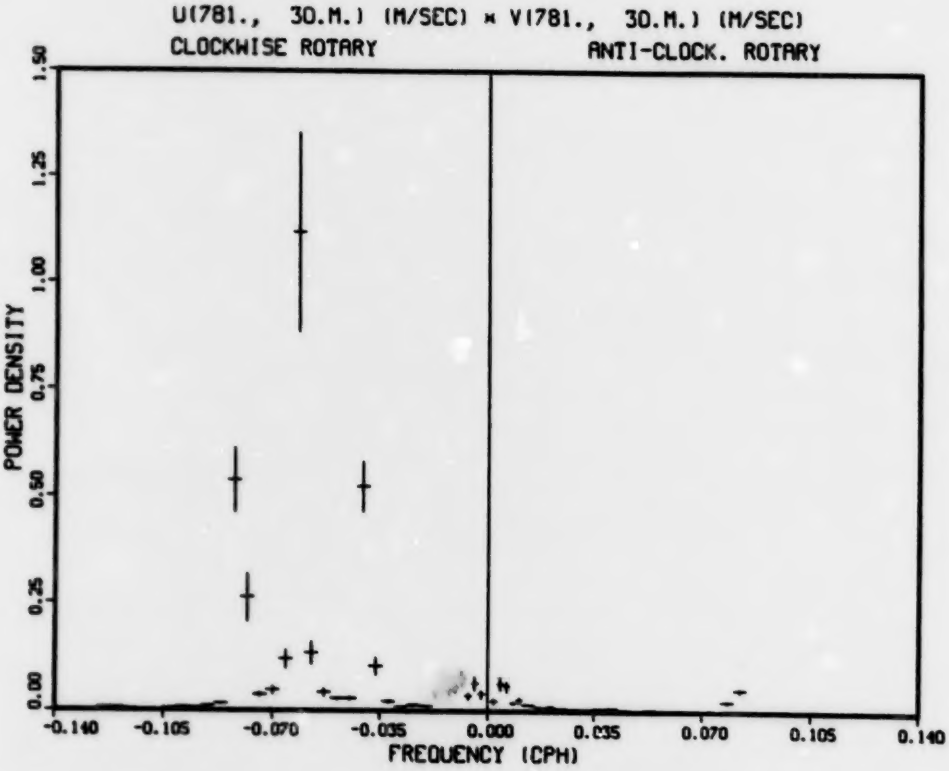
CM(781; 30M) - RESIDUAL STATISTICS

POSITION	46.859 N 48.718 W
BOTTOM DEPTH	90.0 M
DURATION	146.3 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	-.79	12.11	5.05	2.85
SALINITY	PPT	32.12	32.82	32.54	.16
SIGMA-THETA	KG/M**3	24.34	26.37	25.67	.42
N-S COMPONENT	CM/S	-11.38	12.84	.68	3.84
E-W COMPONENT	CM/S	-10.61	8.47	-1.11	2.98
MAJOR AXIS	CM/S	-11.46	11.99	1.04	3.99
MINOR AXIS	CM/S	-8.67	6.44	-.78	2.78

MAJOR AXIS ORIENTATION 338.07 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL

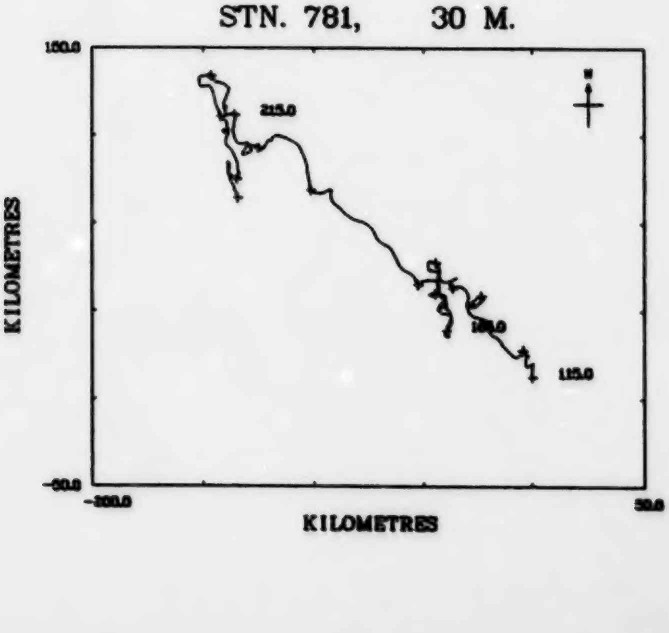


```
HISTOGRAM OF CURRENT SPEED AT (781;  30M)          TIDAL RESIDUALS (M/SEC)
 GRAND BANK
 CRUISE    86005.   STATION      781.    LAT   46.8590    LONG   48.7177
 INSTRUMENT 3579          BOTTOM DEPTH   90.0 METRES
 SAMPLED EACH     1800. SECS      START TIME  17:59:55 Z    21/ 4/1986

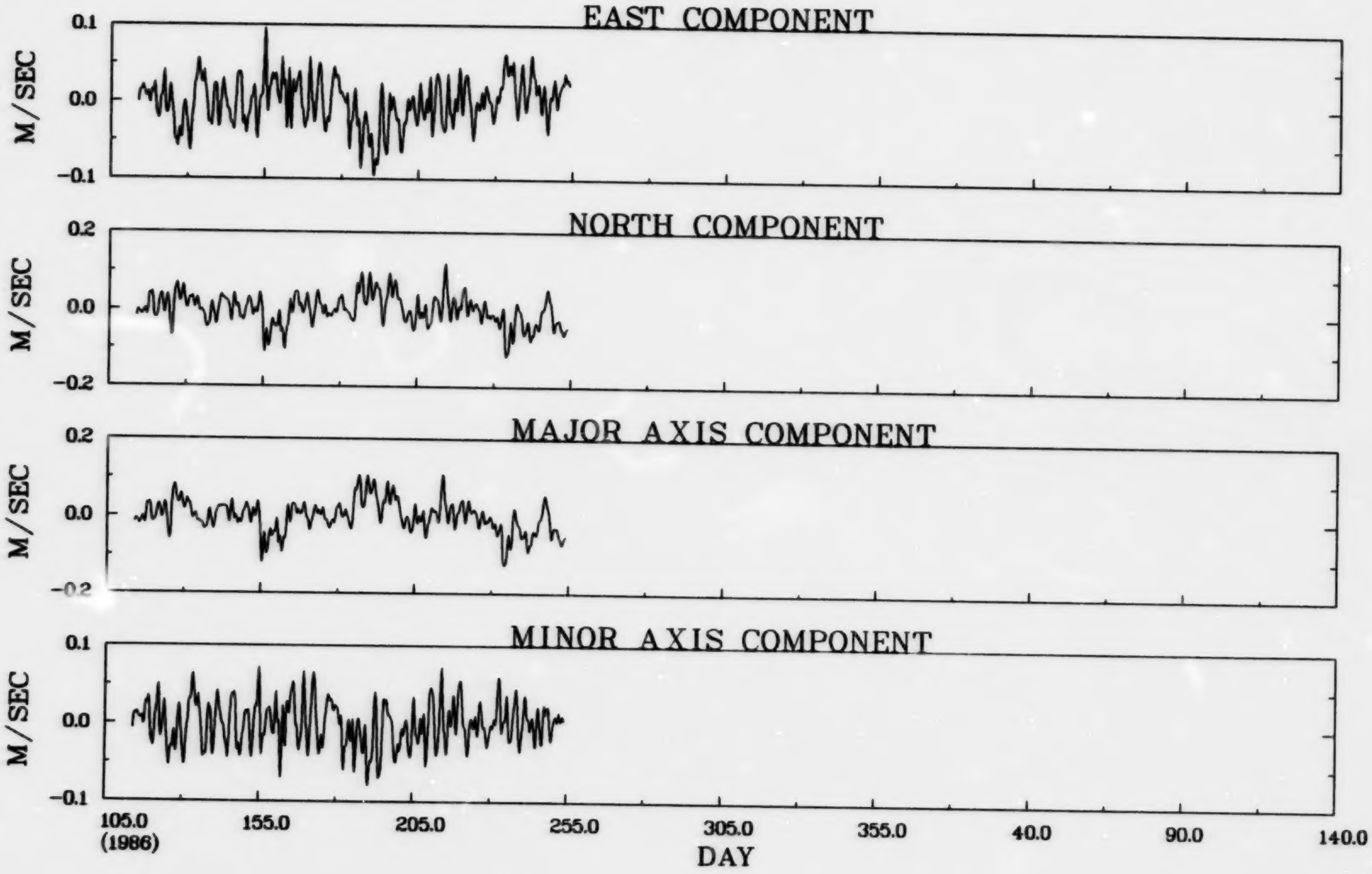
TOTAL NO. OF SAMPLES   6955
NO. OUT OF RANGE          0

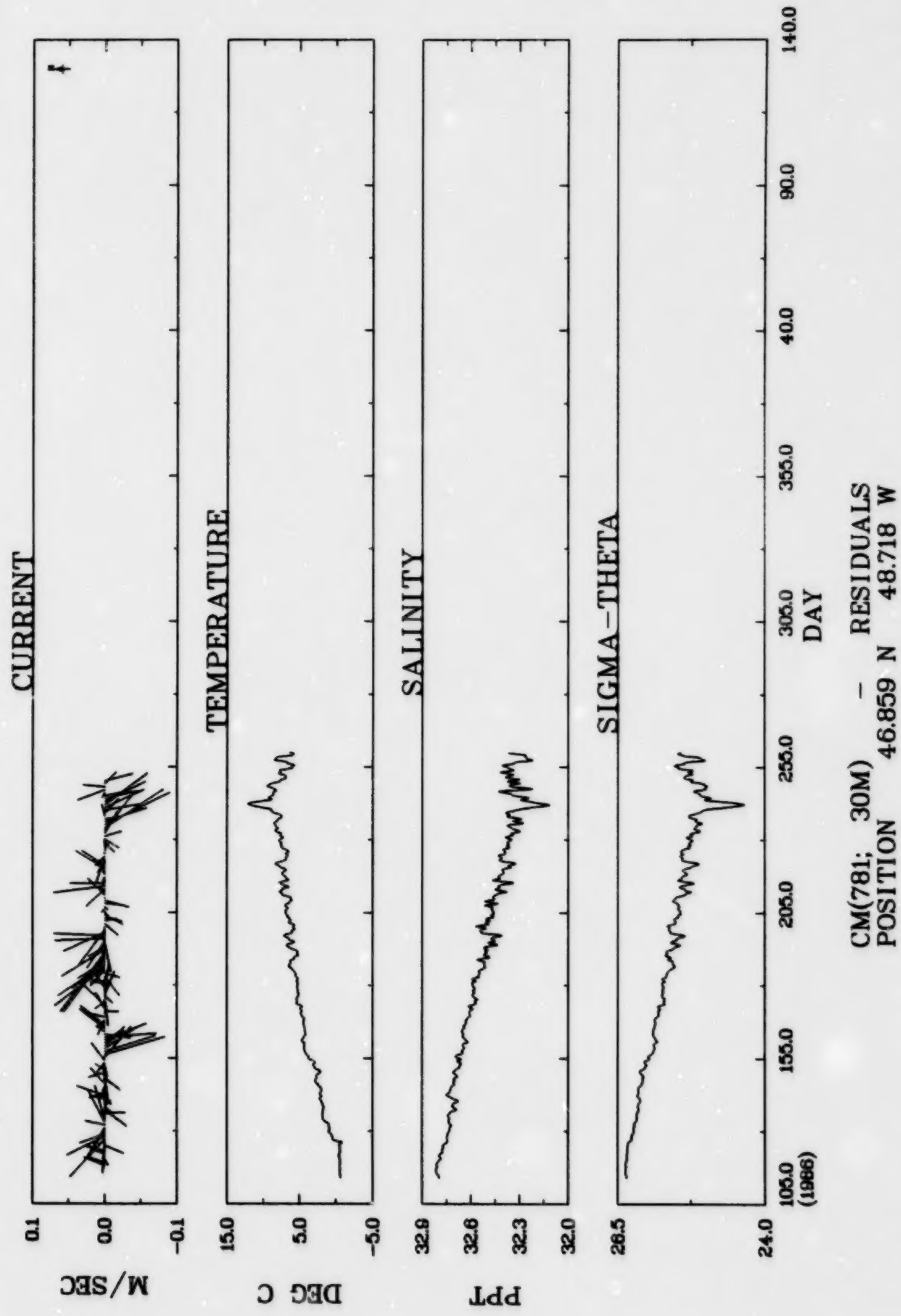

          BAND          NUMBER  PER
                                CENT


     ( 0.00,   .02)     357    5.1 ***************
     (  .02,   .04)     853   12.3 *************************************
     (  .04,   .06)    1125   16.2 *************************************************
     (  .06,   .08)    1157   16.6 **************************************************
     (  .08,   .10)    1029   14.8 ********************************************
     (  .10,   .12)     711   10.2 *******************************
     (  .12,   .14)     593    8.5 **************************
     (  .14,   .16)     360    5.2 ***************
     (  .16,   .18)     288    4.1 ************
     (  .18,   .20)     185    2.7 ********
     (  .20,   .22)     135    1.9 ******
     (  .22,   .24)      73    1.0 ***
     (  .24,   .26)      36     .5 *
     (  .26,   .28)      20     .3 *
     (  .28,   .30)      19     .3 *
     (  .30,   .32)       9     .1
     (  .32,   .34)       2     .0
     (  .34,   .36)       3     .0
```



CM(781; 30M) – RESIDUALS
POSITION 46.859 N 48.718 W




M/SEC
0.1
0.0
-0.1
CURRENT
DEG C
15.0
5.0
-5.0
TEMPERATURE
PPT
32.9
32.6
32.3
32.0
SALINITY
26.5
24.0
SIGMA-THETA
105.0
(1986)
155.0
205.0
255.0
305.0
355.0
40.0
90.0
140.0
DAY
CM(781; 30M) – RESIDUALS
POSITION 46.859 N 48.718 W

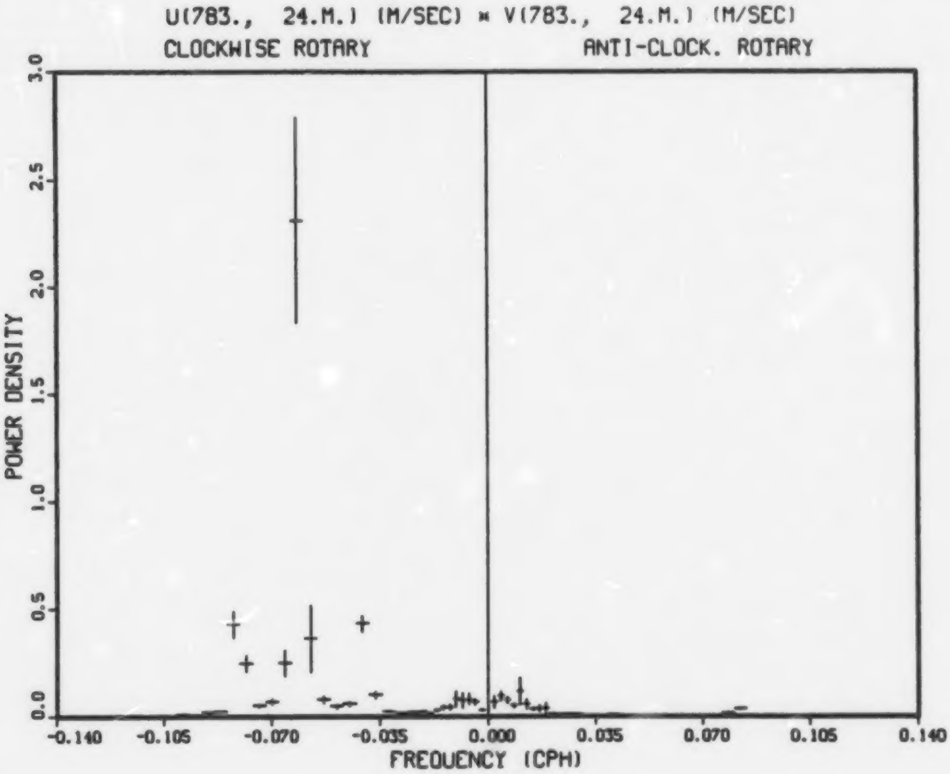
CM(783: 24M) - RESIDUAL STATISTICS

POSITION	46.894 N 48.595 W
BOTTOM DEPTH	107.0 M
DURATION	169.0 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	-.73	14.26	7.36	4.36
SALINITY	PPT	31.62	32.79	32.35	.31
SIGMA-THETA	KG/M**3	23.67	26.34	25.18	.81
N-S COMPONENT	CM/S	-27.13	9.55	-.48	4.15
E-W COMPONENT	CM/S	-43.48	14.06	-.09	4.50
MAJOR AXIS	CM/S	-39.95	12.15	-.36	4.95
MINOR AXIS	CM/S	-19.33	14.42	.33	3.61

MAJOR AXIS ORIENTATION 52.64 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



```
HISTOGRAM OF CURRENT SPEED AT (783;  24M)          TIDAL RESIDUALS (M/SEC)
 GRAND BANK
 CRUISE    86005.   STATION      783.    LAT   46.8937    LONG   48.5950
 INSTRUMENT 828           BOTTOM DEPTH  107.0 METRES
 SAMPLED EACH     1800. SECS       START TIME  16:29:55 Z   22/ 4/1986

TOTAL NO. OF SAMPLES   8345
NO. OUT OF RANGE          0

       BAND          NUMBER  PER
                             CENT


   ( 0.00,    .02)     220    2.6 ••••••••••
   (  .02,    .04)     682    8.2 •••••••••••••••••••••••••••••••
   (  .04,    .06)     883   10.6 ••••••••••••••••••••••••••••••••••••••••
   (  .06,    .08)    1065   12.8 ••••••••••••••••••••••••••••••••••••••••••••••••
   (  .08,    .10)    1047   12.5 ••••••••••••••••••••••••••••••••••••••••••••••••
   (  .10,    .12)     991   11.9 •••••••••••••••••••••••••••••••••••••••••••••
   (  .12,    .14)     827    9.9 ••••••••••••••••••••••••••••••••••••••
   (  .14,    .16)     613    7.3 ••••••••••••••••••••••••••••
   (  .16,    .18)     511    6.1 •••••••••••••••••••••••
   (  .18,    .20)     420    5.0 •••••••••••••••••••
   (  .20,    .22)     319    3.8 ••••••••••••••
   (  .22,    .24)     218    2.6 ••••••••••
   (  .24,    .26)     169    2.0 ••••••••
   (  .26,    .28)      96    1.2 ••••
   (  .28,    .30)      71     .9 •••
   (  .30,    .32)      55     .7 ••
   (  .32,    .34)      37     .4 ••
   (  .34,    .36)      32     .4 •
   (  .36,    .38)      17     .2 •
   (  .38,    .40)      14     .2 •
   (  .40,    .42)       6     .1
   (  .42,    .44)       9     .1
   (  .44,    .46)       5     .1
   (  .46,    .48)       3     .0
   (  .48,    .50)       8     .1
   (  .50,    .52)       2     .0
   (  .52,    .54)       2     .0
   (  .54,    .56)       2     .0
   (  .56,    .58)       3     .0
   (  .58,    .60)       1     .0
   (  .60,    .62)       2     .0
   (  .62,    .64)       2     .0
   (  .64,    .66)       3     .0
   (  .66,    .68)       1     .0
   (  .68,    .70)       4     .0
   (  .70,    .72)       3     .0
   (  .72,    .74)       1     .0
   (  .74,    .76)       1     .0
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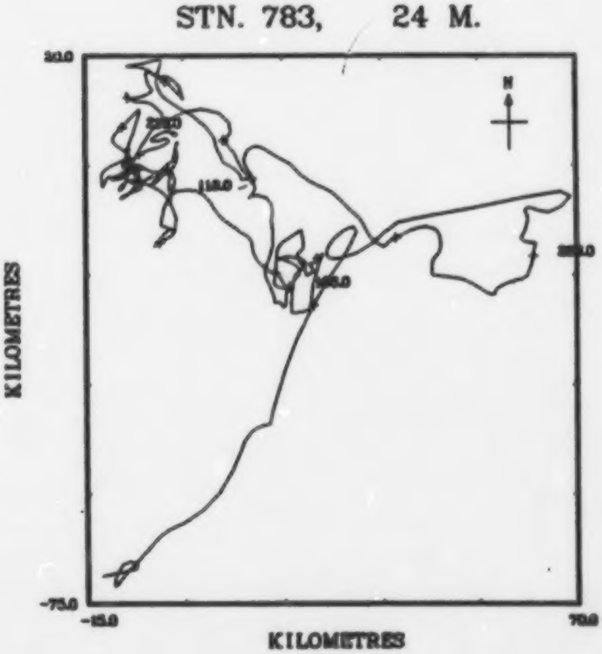
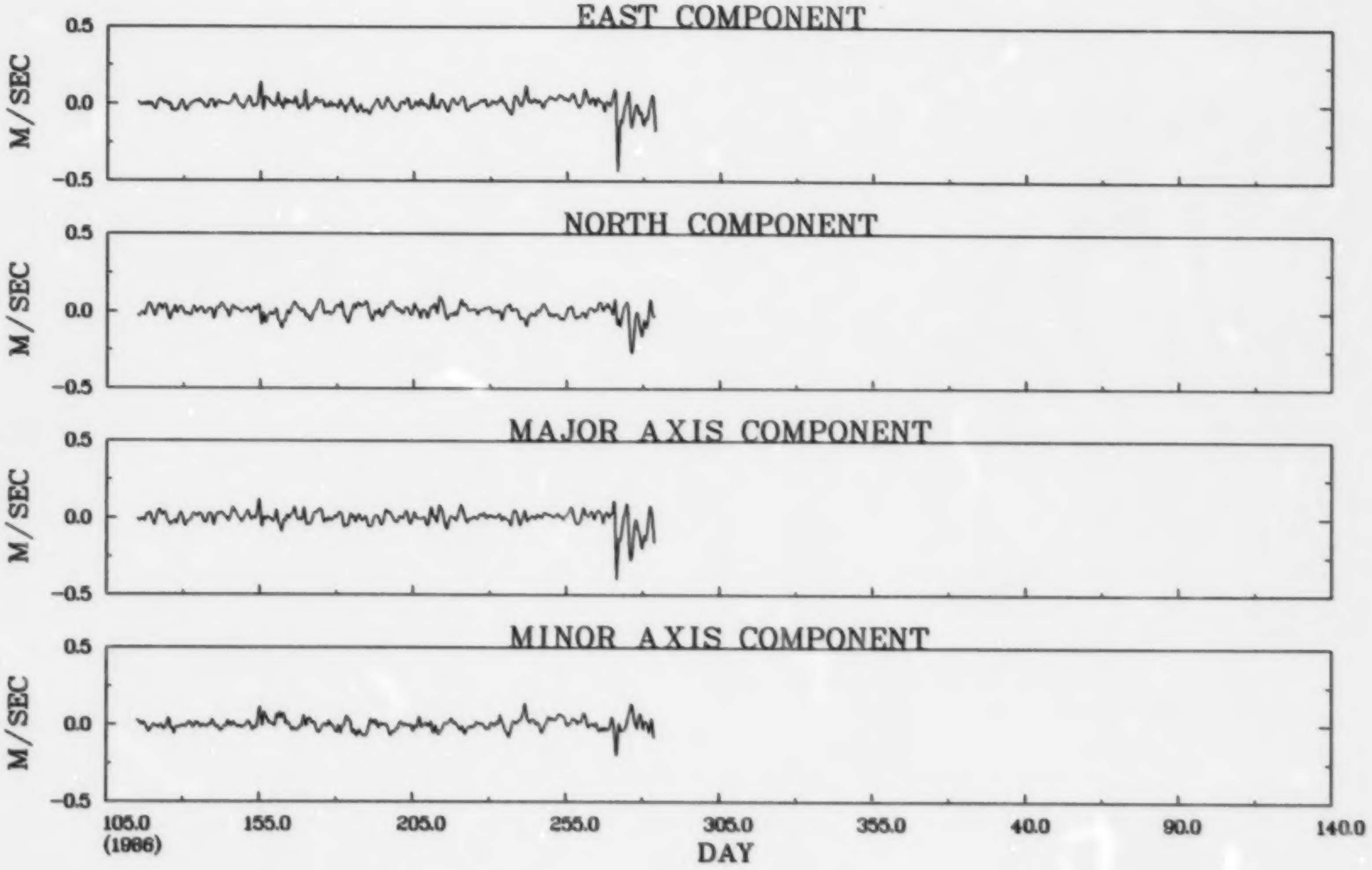
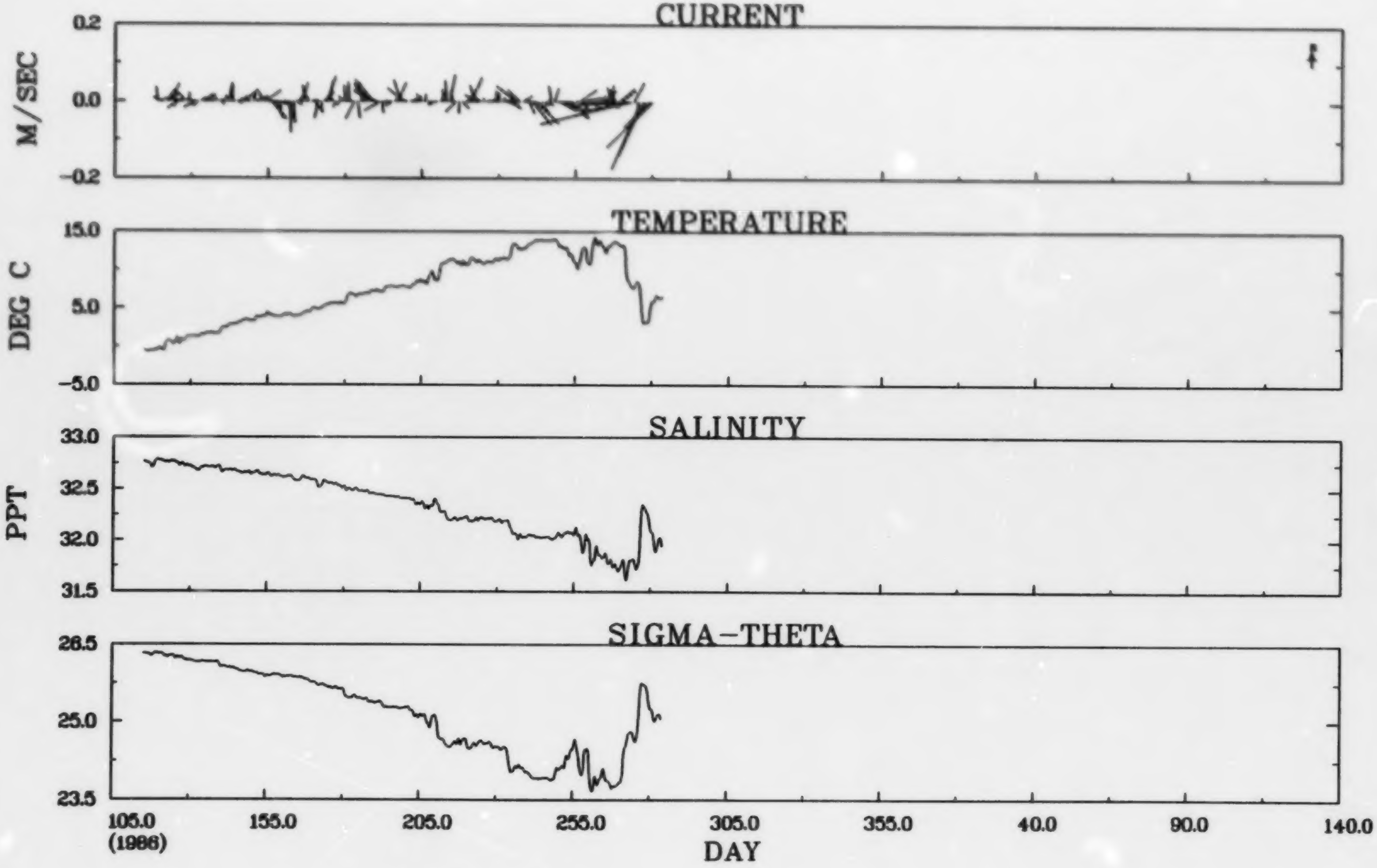
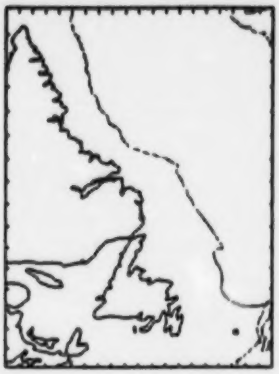


CM(783; 24M) - RESIDUALS
POSITION 46.894 N 48.595 W





CM(783; 24M) - RESIDUALS
POSITION 46.894 N 48.595 W



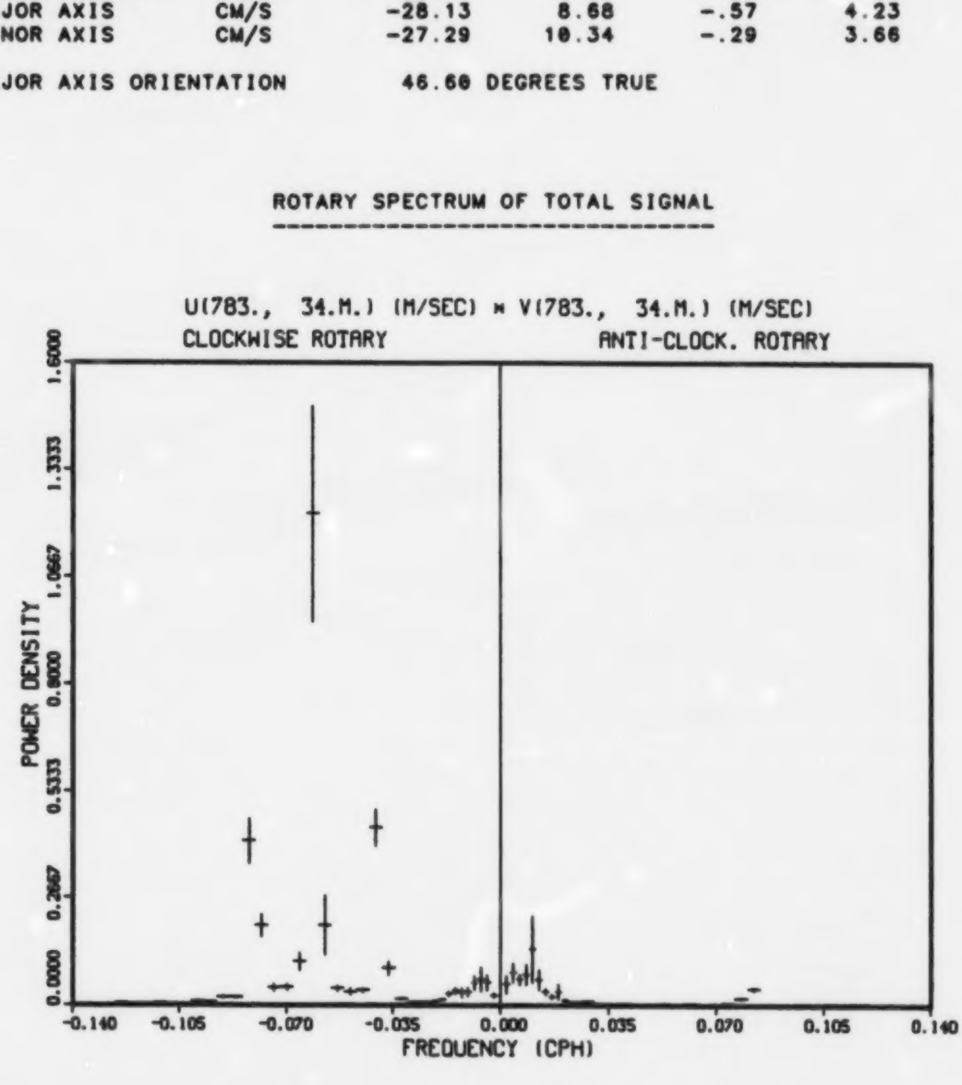
CM(783; 34M) - RESIDUAL STATISTICS

POSITION	46.894 N 48.595 W
BOTTOM DEPTH	107.0 M
DURATION	169.0 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	-.70	10.28	4.78	2.50
SALINITY	PPT	31.81	32.75	32.55	.15
SIGMA-THETA	KG/M**3	24.65	26.31	25.72	.34
N-S COMPONENT	CM/S	-25.94	10.57	-.18	3.94
E-W COMPONENT	CM/S	-32.64	9.31	-.61	3.97
MAJOR AXIS	CM/S	-28.13	8.68	-.57	4.23
MINOR AXIS	CM/S	-27.29	10.34	-.29	3.66

MAJOR AXIS ORIENTATION 46.60 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



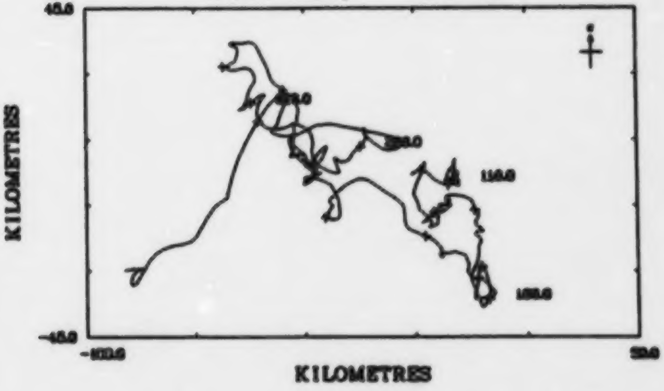
```
HISTOGRAM OF CURRENT SPEED AT (783:  34M)          TIDAL RESIDUALS (M/SEC)
 GRAND BANK
 CRUISE    86005.   STATION       783.    LAT   46.8937    LONG   48.5950
 INSTRUMENT 5573          BOTTOM DEPTH  107.0 METRES
 SAMPLED EACH      1800. SECS       START TIME  16:29:55 Z   22/ 4/1986

TOTAL NO. OF SAMPLES   8345
NO. OUT OF RANGE          0

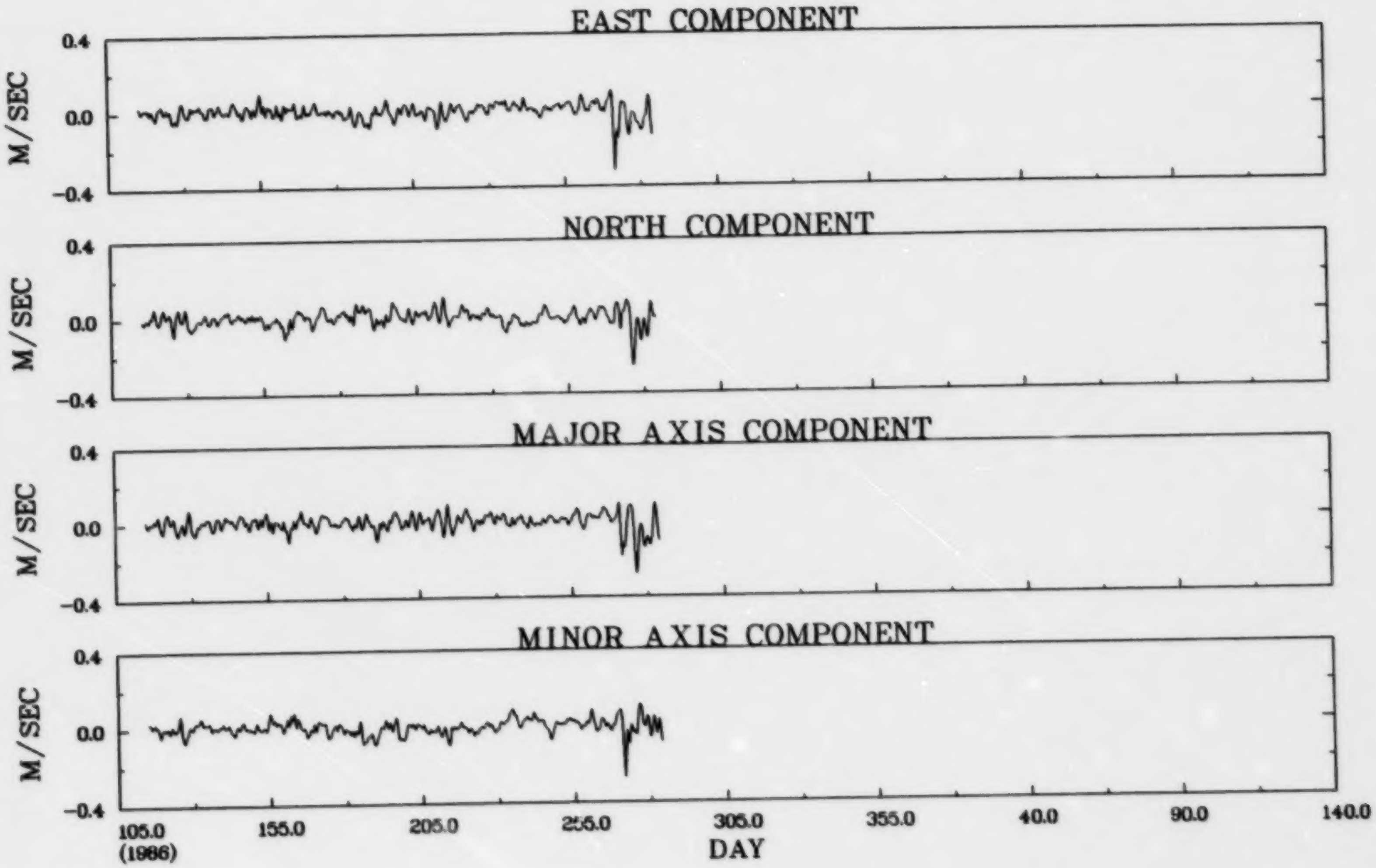

         BAND           NUMBER  PER
                                CENT

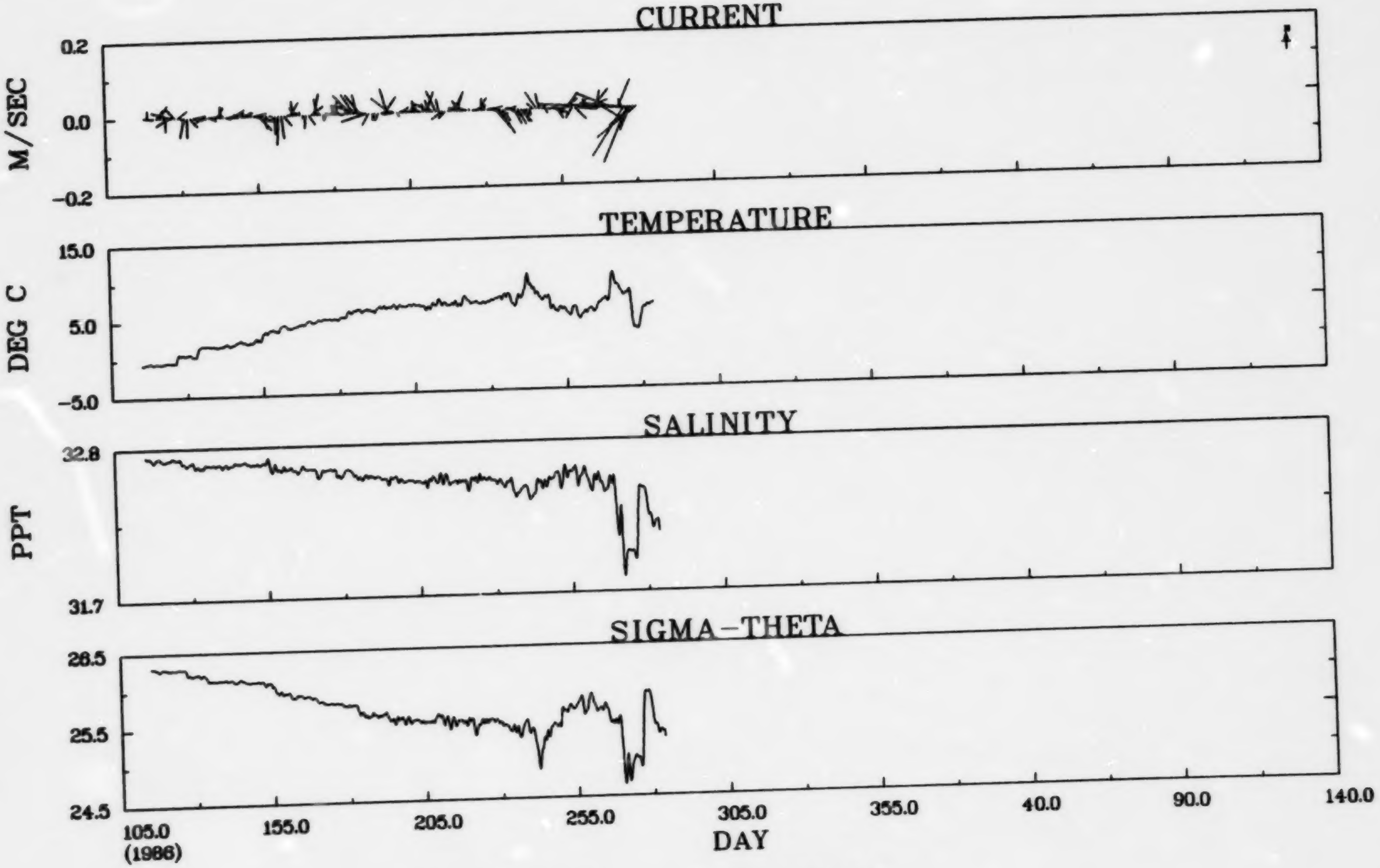

     ( 0.00,   .02)     457    5.5 ****************
     (  .02,   .04)    1024   12.3 *************************************
     (  .04,   .06)    1319   15.8 ***********************************************
     (  .06,   .08)    1290   15.5 **********************************************
     (  .08,   .10)    1077   12.9 **************************************
     (  .10,   .12)     854   10.2 ******************************
     (  .12,   .14)     672    8.1 ************************
     (  .14,   .16)     513    6.1 ******************
     (  .16,   .18)     344    4.1 ************
     (  .18,   .20)     236    2.8 ********
     (  .20,   .22)     174    2.1 ******
     (  .22,   .24)     111    1.3 ****
     (  .24,   .26)      67     .8 **
     (  .26,   .28)      46     .6 **
     (  .28,   .30)      46     .6 **
     (  .30,   .32)      30     .4 *
     (  .32,   .34)      18     .2 *
     (  .34,   .36)      14     .2
     (  .36,   .38)      10     .1
     (  .38,   .40)       8     .1
     (  .40,   .42)       5     .1
     (  .42,   .44)       6     .1
     (  .44,   .46)       2     .0
     (  .46,   .48)       2     .0
     (  .48,   .50)       4     .0
     (  .50,   .52)       3     .0
     (  .52,   .54)       3     .0
     (  .54,   .56)       4     .0
     (  .56,   .58)       4     .0
     (  .58,   .60)       0    0.0
     (  .60,   .62)       2     .0
```

STN. 783,   34 M.



CM(783; 34M) - RESIDUALS
POSITION 46.894 N 48.595 W





CM(783; 34M) − RESIDUALS
POSITION 46.894 N 48.595 W

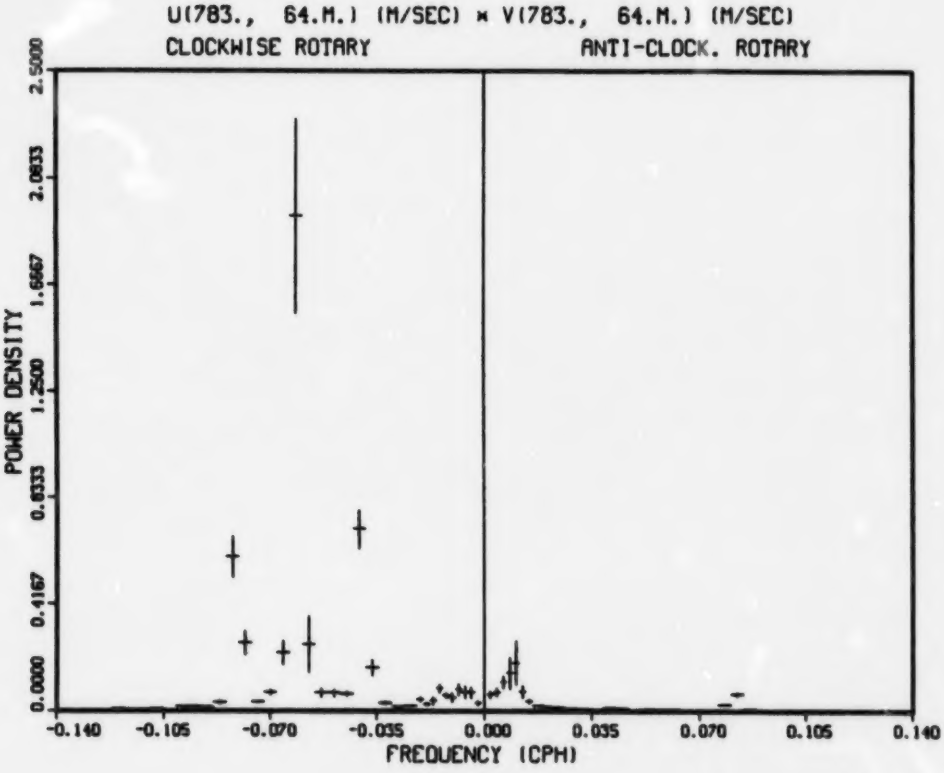
CM(783; 64M) - RESIDUAL STATISTICS

POSITION	46.894 N 48.595 W
BOTTOM DEPTH	107.0 M
DURATION	169.0 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	-1.50	.58	-1.10	.20
SALINITY	PPT	32.62	32.87	32.76	.04
SIGMA-THETA	KG/M**3	26.16	26.44	26.34	.03
N-S COMPONENT	CM/S	-15.99	15.13	-.70	4.59
E-W COMPONENT	CM/S	-27.72	14.20	.76	4.27
MAJOR AXIS	CM/S	-16.08	15.51	-.68	4.59
MINOR AXIS	CM/S	-27.89	14.37	.78	4.27

MAJOR AXIS ORIENTATION 1.84 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



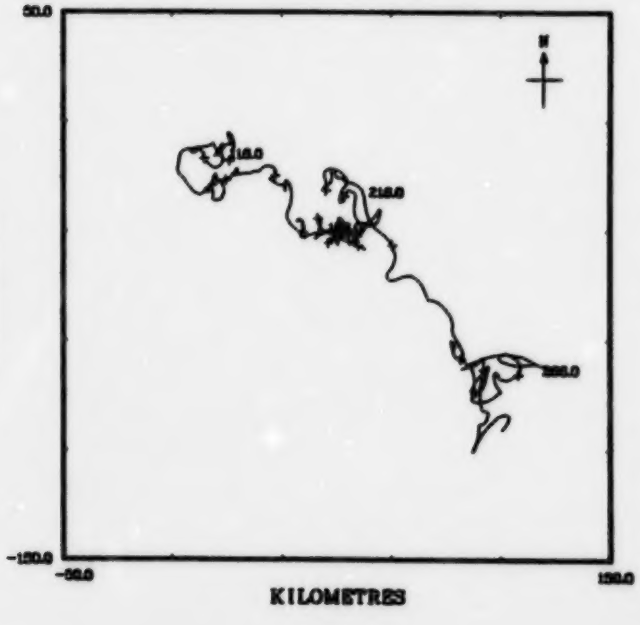
```
HISTOGRAM OF CURRENT SPEED AT (783;  64M)          TIDAL RESIDUALS (M/SEC)
 GRAND BANK
 CRUISE    86005.   STATION      783.    LAT   46.8937    LONG   48.5950
 INSTRUMENT 7126         BOTTOM DEPTH  107.0 METRES
 SAMPLED EACH     1800. SECS      START TIME  16:29:55 Z   22/ 4/1986

TOTAL NO. OF SAMPLES   8345
NO. OUT OF RANGE          0

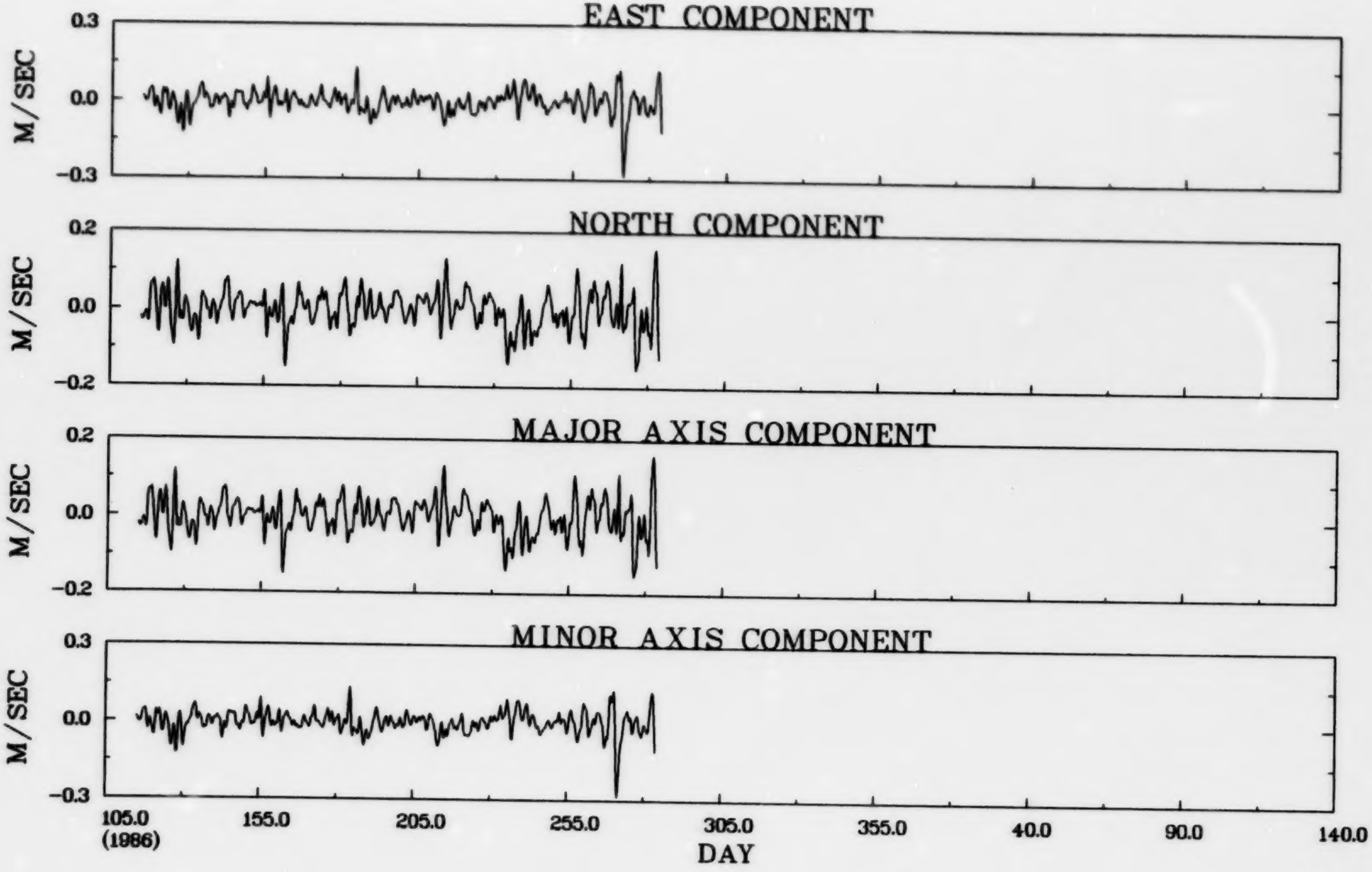

        BAND          NUMBER  PER
                              CENT

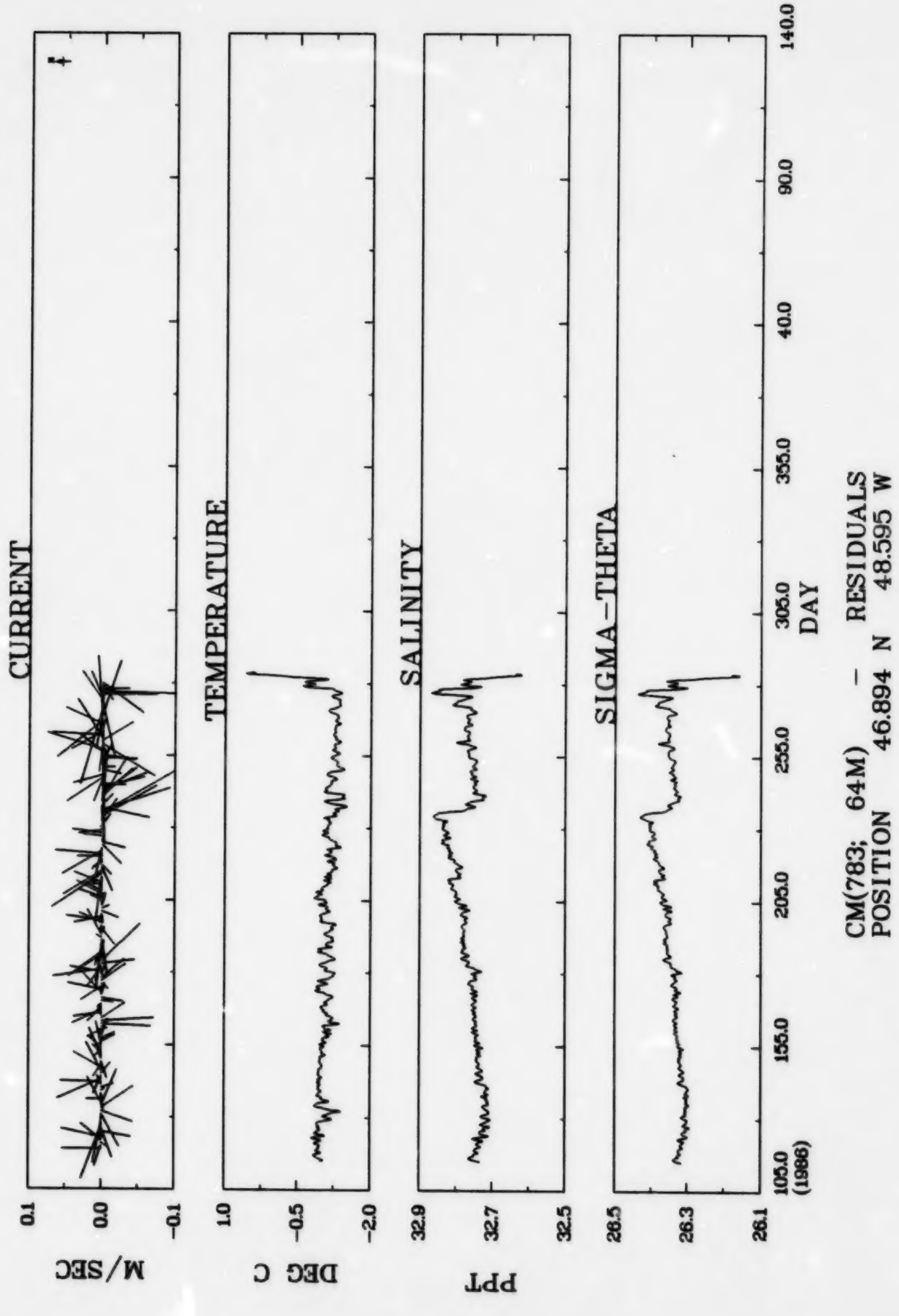

    ( 0.00,    .02)    150    1.8 ******
    (  .02,    .04)    463    5.5 *******************
    (  .04,    .06)    766    9.2 ********************************
    (  .06,    .08)    915   11.0 **************************************
    (  .08,    .10)   1059   12.7 ********************************************
    (  .10,    .12)   1156   13.9 ************************************************
    (  .12,    .14)    976   11.7 *****************************************
    (  .14,    .16)    793    9.5 *********************************
    (  .16,    .18)    643    7.7 ***************************
    (  .18,    .20)    401    4.8 *****************
    (  .20,    .22)    292    3.5 ************
    (  .22,    .24)    216    2.6 *********
    (  .24,    .26)    149    1.8 ******
    (  .26,    .28)    120    1.4 *****
    (  .28,    .30)     72     .9 ***
    (  .30,    .32)     67     .8 ***
    (  .32,    .34)     46     .6 **
    (  .34,    .36)     25     .3 *
    (  .36,    .38)      9     .1
    (  .38,    .40)      6     .1
    (  .40,    .42)      9     .1
    (  .42,    .44)      8     .1
    (  .44,    .46)      3     .0
    (  .46,    .48)      1     .0
```

STN. 783,   64 M.

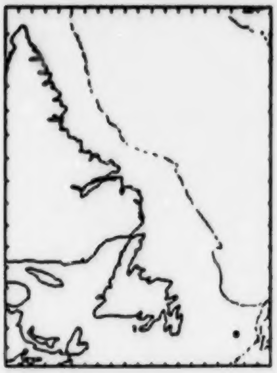


CM(783; 64M) - RESIDUALS
POSITION 46.894 N 48.595 W





CM(783; 64M) – RESIDUALS
POSITION 46.894 N 48.595 W



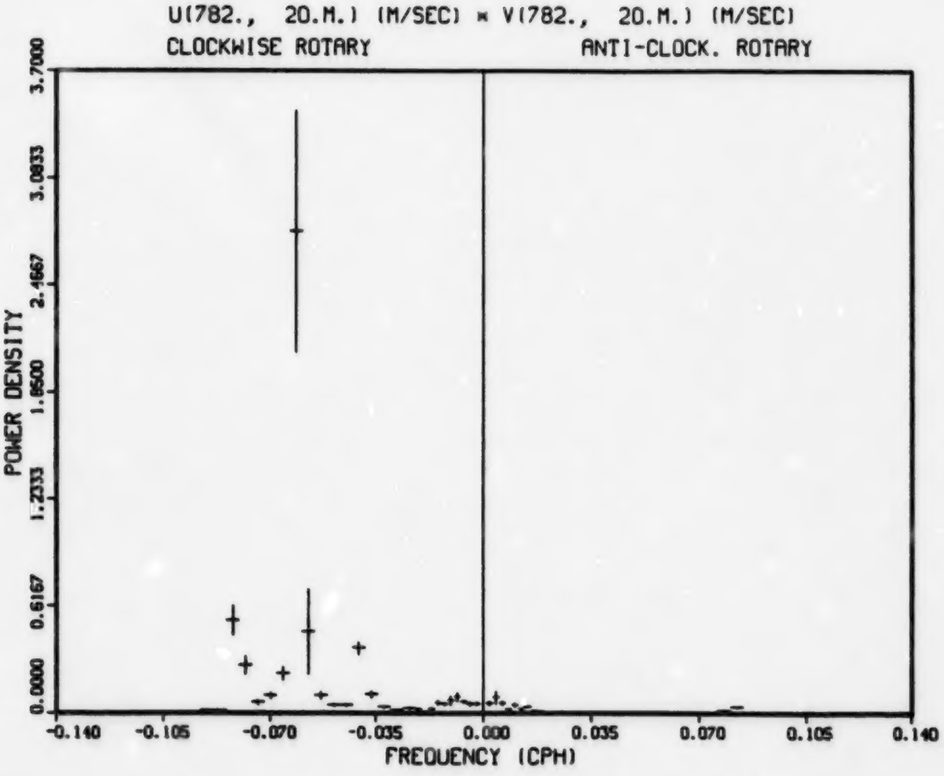
CM(782; 20M) - RESIDUAL STATISTICS

POSITION 46.681 N 48.626 W
BOTTOM DEPTH 90.0 M
DURATION 127.3 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	-.38	14.35	7.09	4.19
SALINITY	PPT	32.07	32.79	32.53	.18
SIGMA-THETA	KG/M**3	24.00	26.32	25.36	.71
N-S COMPONENT	CM/S	-12.91	14.00	.14	3.77
E-W COMPONENT	CM/S	-9.82	12.78	.21	3.60
MAJOR AXIS	CM/S	-10.68	11.37	.02	3.84
MINOR AXIS	CM/S	-8.72	13.55	.26	3.53

MAJOR AXIS ORIENTATION 331.26 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



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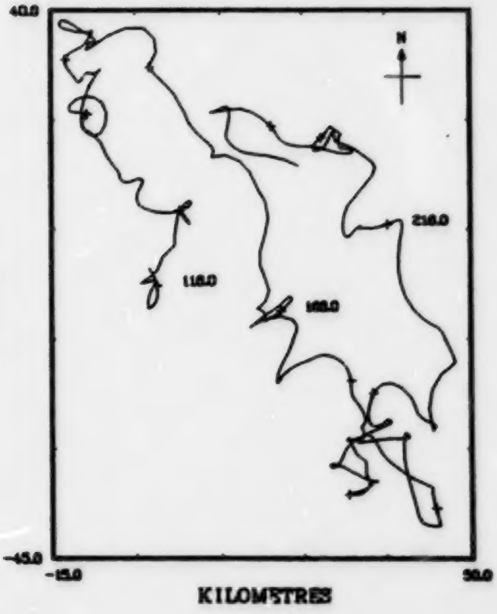
HISTOGRAM OF CURRENT SPEED AT (782:  20M)          TIDAL RESIDUALS (M/SEC)
 GRAND BANK
 CRUISE    86005.   STATION      782.    LAT   46.6807    LONG   48.6260
 INSTRUMENT 5567          BOTTOM DEPTH   90.0 METRES
 SAMPLED EACH      1800. SECS      START TIME  21:29:55 Z   21/ 4/1986

TOTAL NO. OF SAMPLES   6378
NO. OUT OF RANGE          0

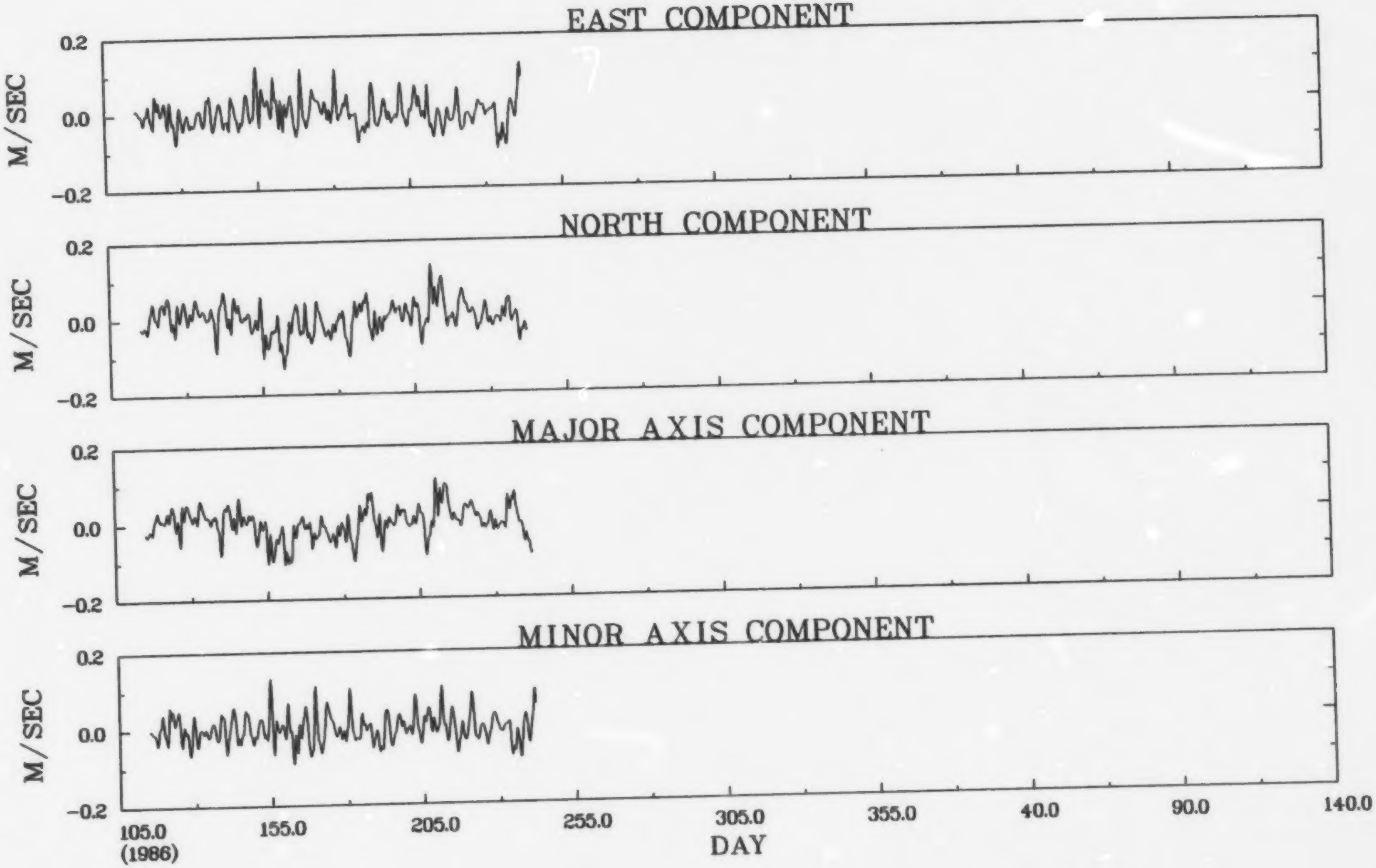

          BAND          NUMBER  PER
                                CENT

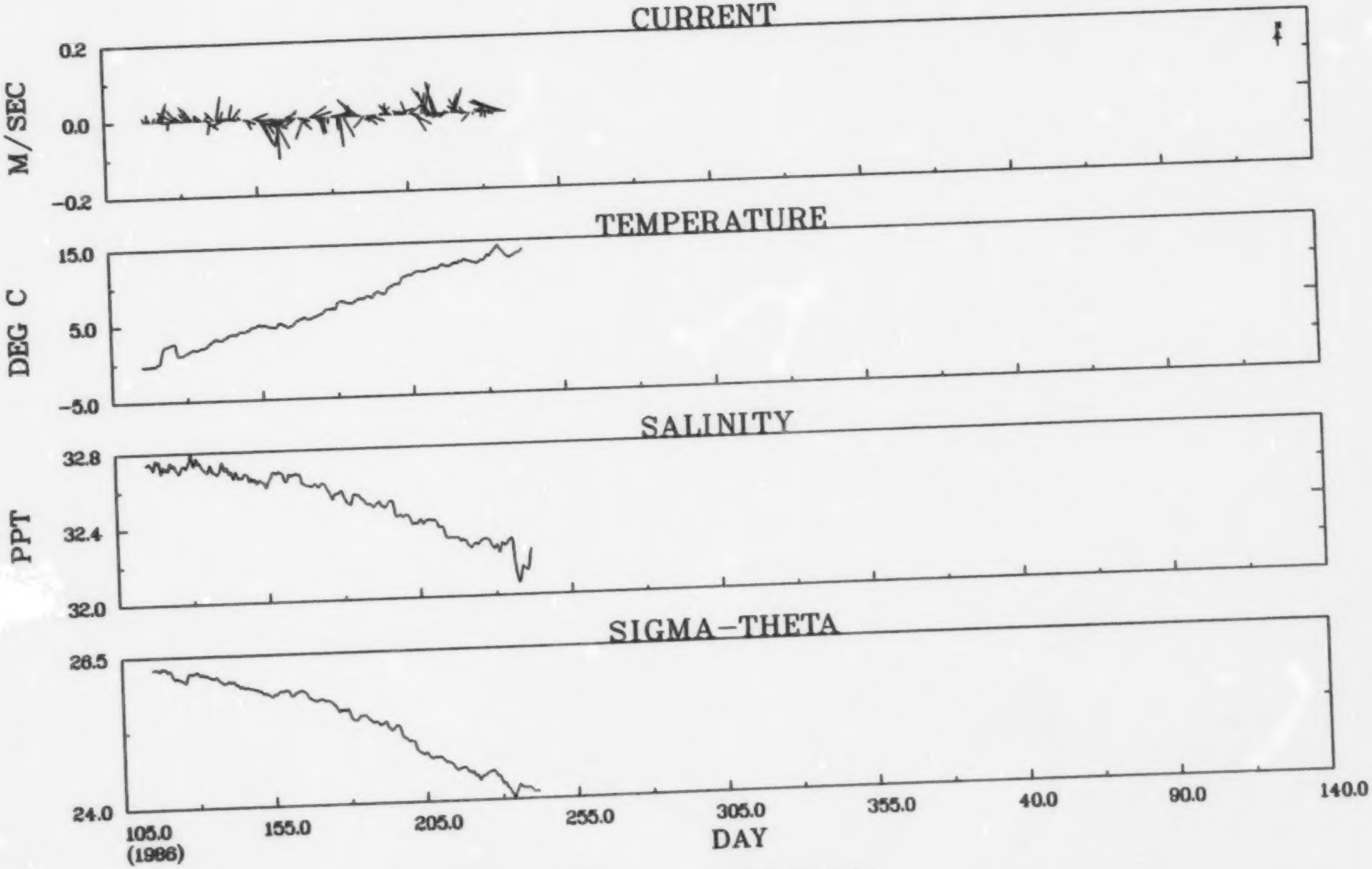

     ( 0.00,   .02)     152     2.4 *********
     (  .02,   .04)     474     7.4 ******************************
     (  .04,   .06)     648    10.2 ****************************************
     (  .06,   .08)     715    11.2 *********************************************
     (  .08,   .10)     720    11.3 *********************************************
     (  .10,   .12)     715    11.2 *********************************************
     (  .12,   .14)     664    10.4 *****************************************
     (  .14,   .16)     598     9.4 *************************************
     (  .16,   .18)     447     7.0 ****************************
     (  .18,   .20)     328     5.1 ********************
     (  .20,   .22)     264     4.1 ****************
     (  .22,   .24)     187     2.9 ************
     (  .24,   .26)     184     2.9 ***********
     (  .26,   .28)     121     1.9 ********
     (  .28,   .30)      94     1.5 ******
     (  .30,   .32)      38      .6 **
     (  .32,   .34)      20      .3 *
     (  .34,   .36)       7      .1
     (  .36,   .38)       2      .0
```

STN. 782, 20 M.



CM(782; 20M) – RESIDUALS
POSITION 46.681 N 48.626 W





CM(782; 20M) - RESIDUALS
POSITION 46.681 N 48.626 W

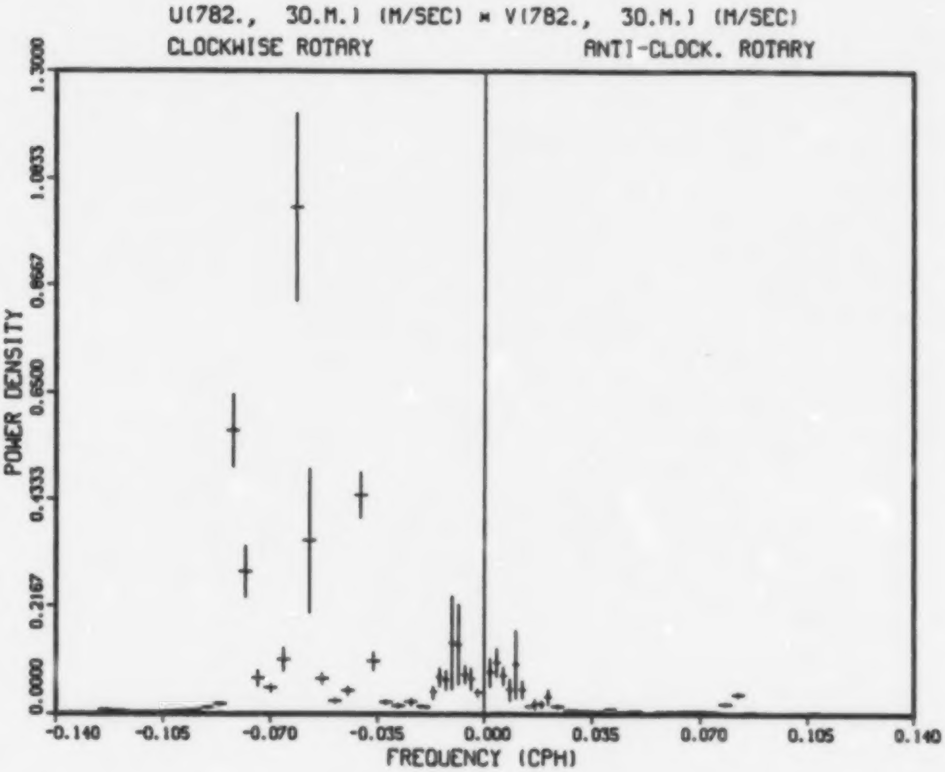
CM(782; 30M) - RESIDUAL STATISTICS

POSITION	46.681 N 48.626 W
BOTTOM DEPTH	98.0 M
DURATION	169.5 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	-.54	13.28	6.59	3.49
SALINITY	PPT	31.71	32.77	32.42	.27
SIGMA-THETA	KG/M**3	23.98	26.32	25.38	.60
N-S COMPONENT	CM/S	-31.86	12.72	.43	4.87
E-W COMPONENT	CM/S	-30.48	22.79	-.70	4.48
MAJOR AXIS	CM/S	-38.04	11.75	-.03	5.16
MINOR AXIS	CM/S	-25.63	22.18	-.82	4.14

MAJOR AXIS ORIENTATION 33.80 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



```
HISTOGRAM OF CURRENT SPEED AT (782;  30M)          TIDAL RESIDUALS (M/SEC)
 GRAND BANK
 CRUISE    86005.   STATION      782.    LAT   46.6807    LONG   48.6260
 INSTRUMENT 7123          BOTTOM DEPTH   90.0 METRES
 SAMPLED EACH      1800. SECS      START TIME  21:29:55 Z   21/ 4/1986

TOTAL NO. OF SAMPLES   8346
NO. OUT OF RANGE          0


        BAND        NUMBER  PER
                            CENT


    ( 0.00,   .02)    339    4.1 *************
    (  .02,   .04)    902   10.8 ***********************************
    (  .04,   .06)   1157   13.9 ********************************************
    (  .06,   .08)   1226   14.7 ***********************************************
    (  .08,   .10)   1031   12.4 ****************************************
    (  .10,   .12)    934   11.2 ************************************
    (  .12,   .14)    743    8.9 *****************************
    (  .14,   .16)    592    7.1 ***********************
    (  .16,   .18)    405    4.9 ****************
    (  .18,   .20)    282    3.4 ***********
    (  .20,   .22)    183    2.2 *******
    (  .22,   .24)    152    1.8 ******
    (  .24,   .26)     83    1.0 ***
    (  .26,   .28)     71     .9 ***
    (  .28,   .30)     65     .8 **
    (  .30,   .32)     44     .5 **
    (  .32,   .34)     36     .4 *
    (  .34,   .36)     16     .2 *
    (  .36,   .38)     10     .1
    (  .38,   .40)      7     .1
    (  .40,   .42)     11     .1
    (  .42,   .44)      7     .1
    (  .44,   .46)     14     .2 *
    (  .46,   .48)     10     .1
    (  .48,   .50)      3     .0
    (  .50,   .52)      5     .1
    (  .52,   .54)      2     .0
    (  .54,   .56)      8     .1
    (  .56,   .58)      5     .1
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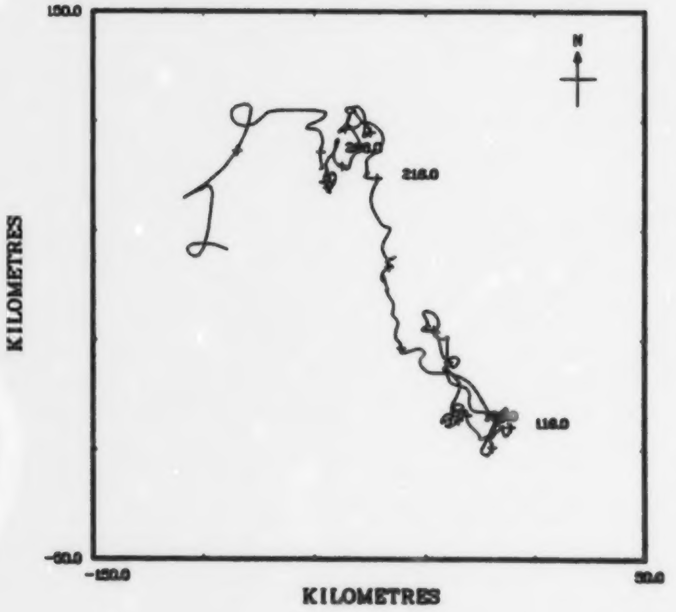
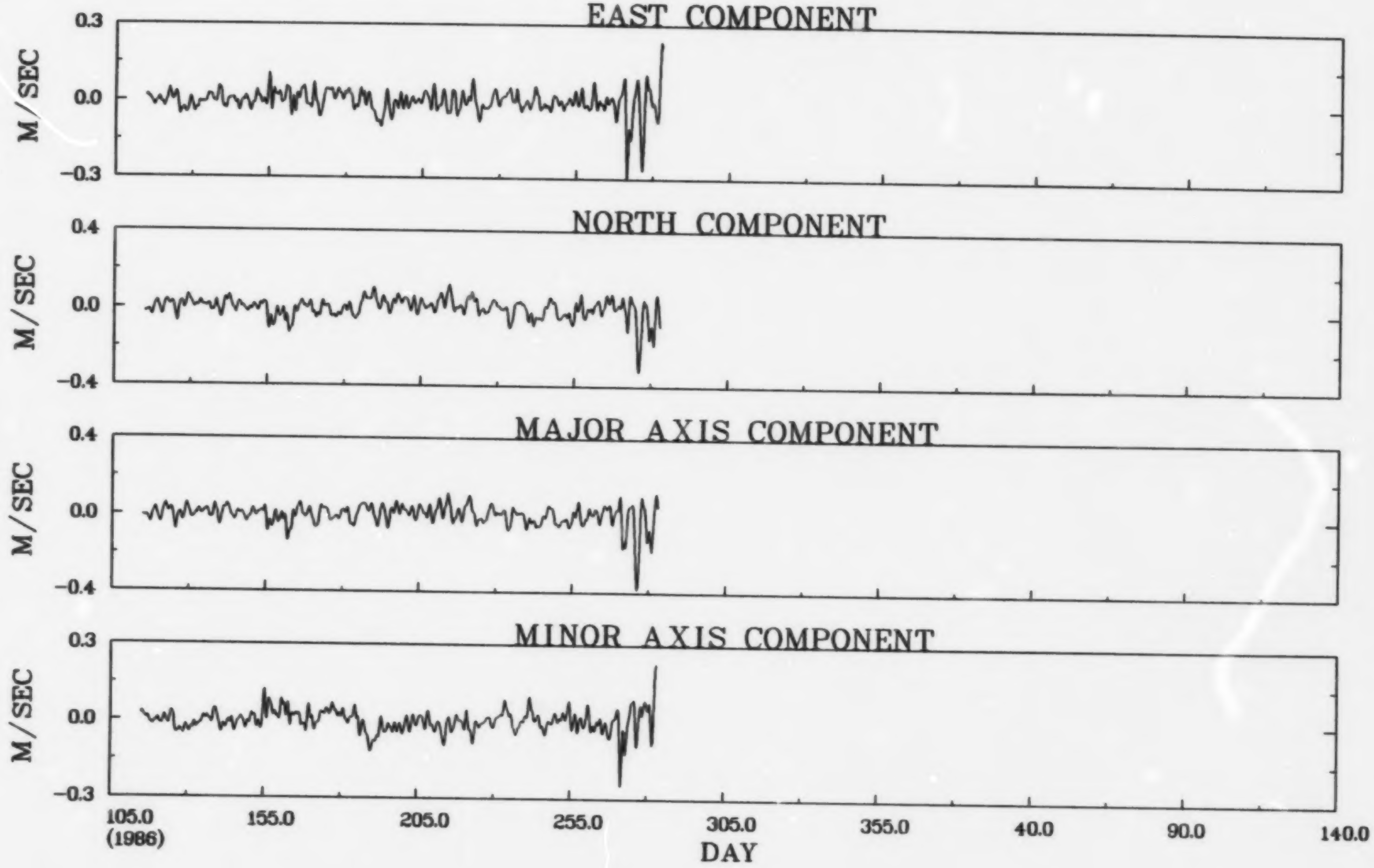
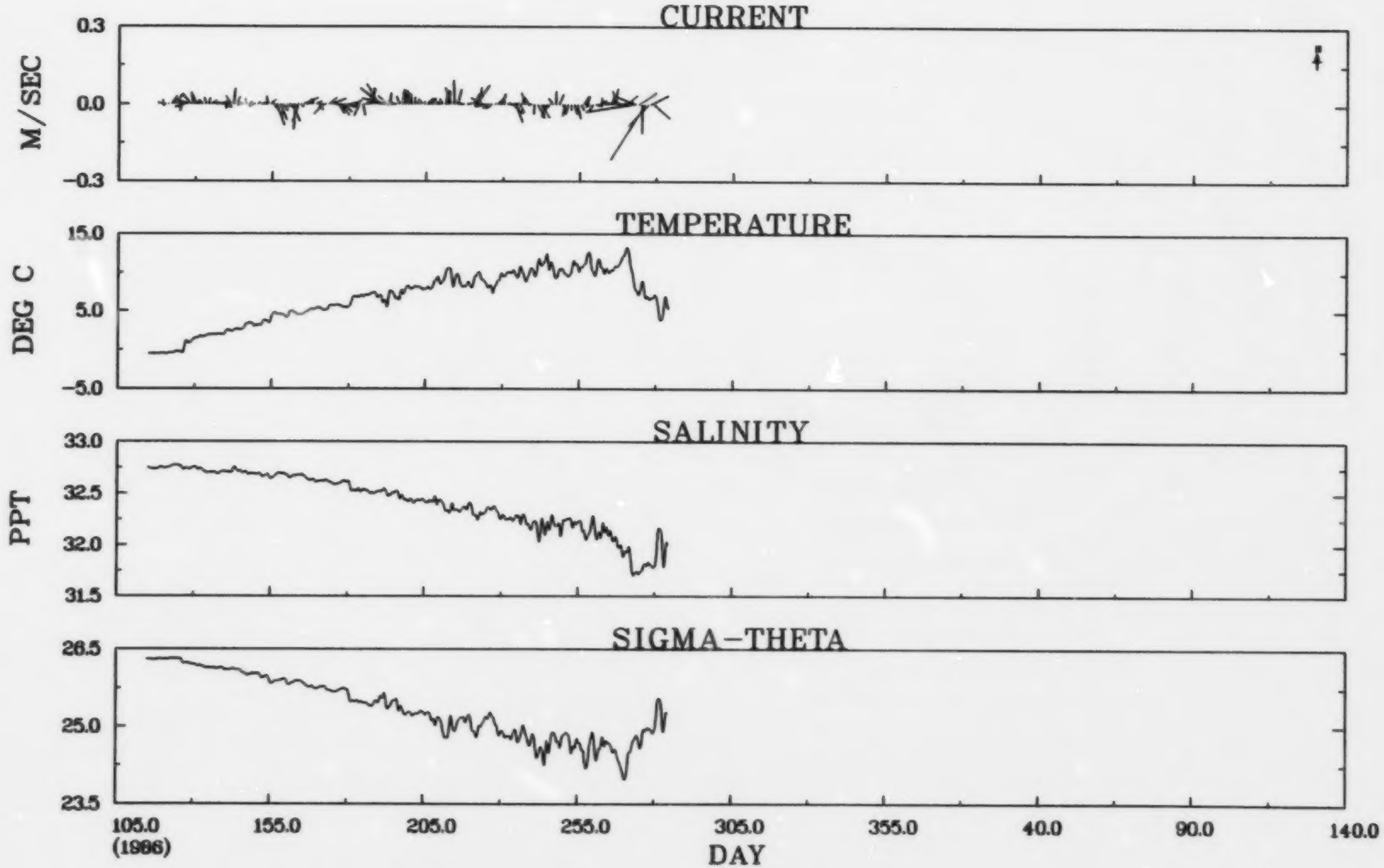
STN. 782,   30 M.



CM(782; 30M) - RESIDUALS
POSITION 46.681 N 48.626 W





CM(782; 30M) − RESIDUALS
POSITION 46.681 N 48.626 W

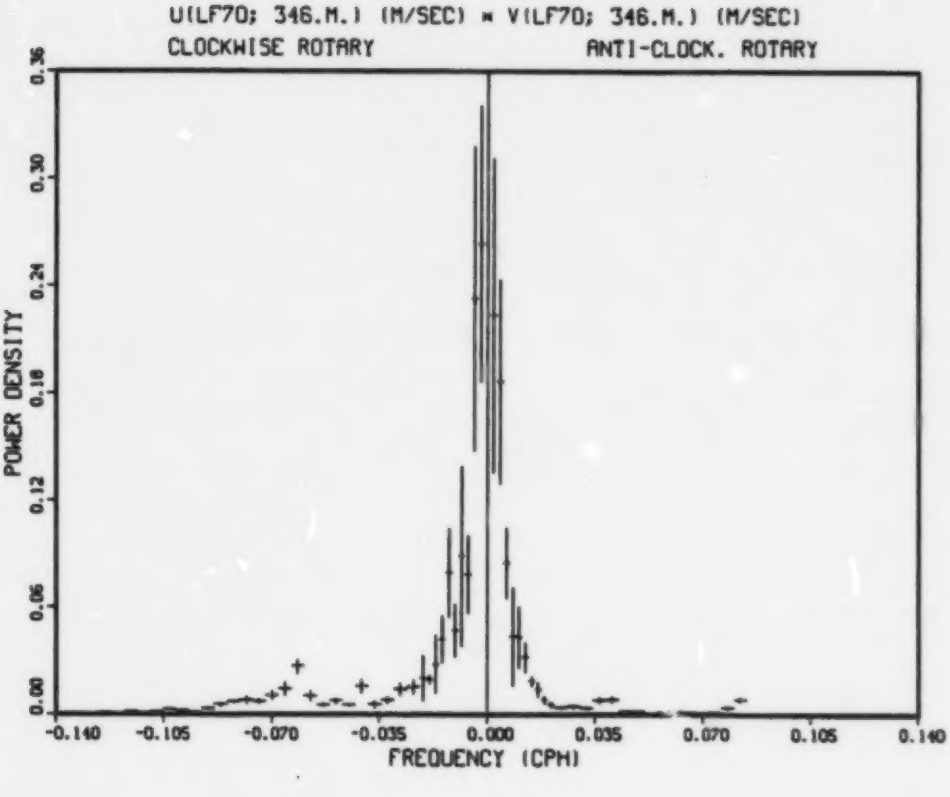
CM(LF70; 346M) - RESIDUAL STATISTICS

POSITION	47.354 N 47.162 W
BOTTOM DEPTH	722.0 M
DURATION	87.0 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	2.71	3.55	3.10	.14
SALINITY	PPT	34.59	34.81	34.72	.05
SIGMA-THETA	KG/M**3	27.58	27.70	27.65	.03
N-S COMPONENT	CM/S	-26.54	21.02	-7.60	9.22
E-W COMPONENT	CM/S	-7.79	10.28	.04	2.32
MAJOR AXIS	CM/S	-26.56	20.73	-7.56	9.26
MINOR AXIS	CM/S	-6.75	10.79	.75	2.16

MAJOR AXIS ORIENTATION 5.39 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



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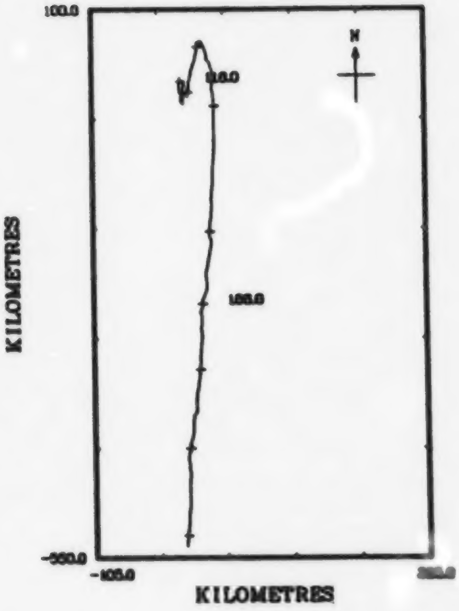
HISTOGRAM OF CURRENT SPEED AT (LF70: 346M)        TIDAL RESIDUALS (M/SEC)
 FLEMISH PASS
 CRUISE    86007.   STATION        1.    LAT   47.3542    LONG   47.1618
 INSTRUMENT                BOTTOM DEPTH  722.0 METRES
 SAMPLED EACH     1200. SECS       START TIME   8:39:60 Z   22/ 4/1986

TOTAL NO. OF SAMPLES   6261
NO. OUT OF RANGE          0

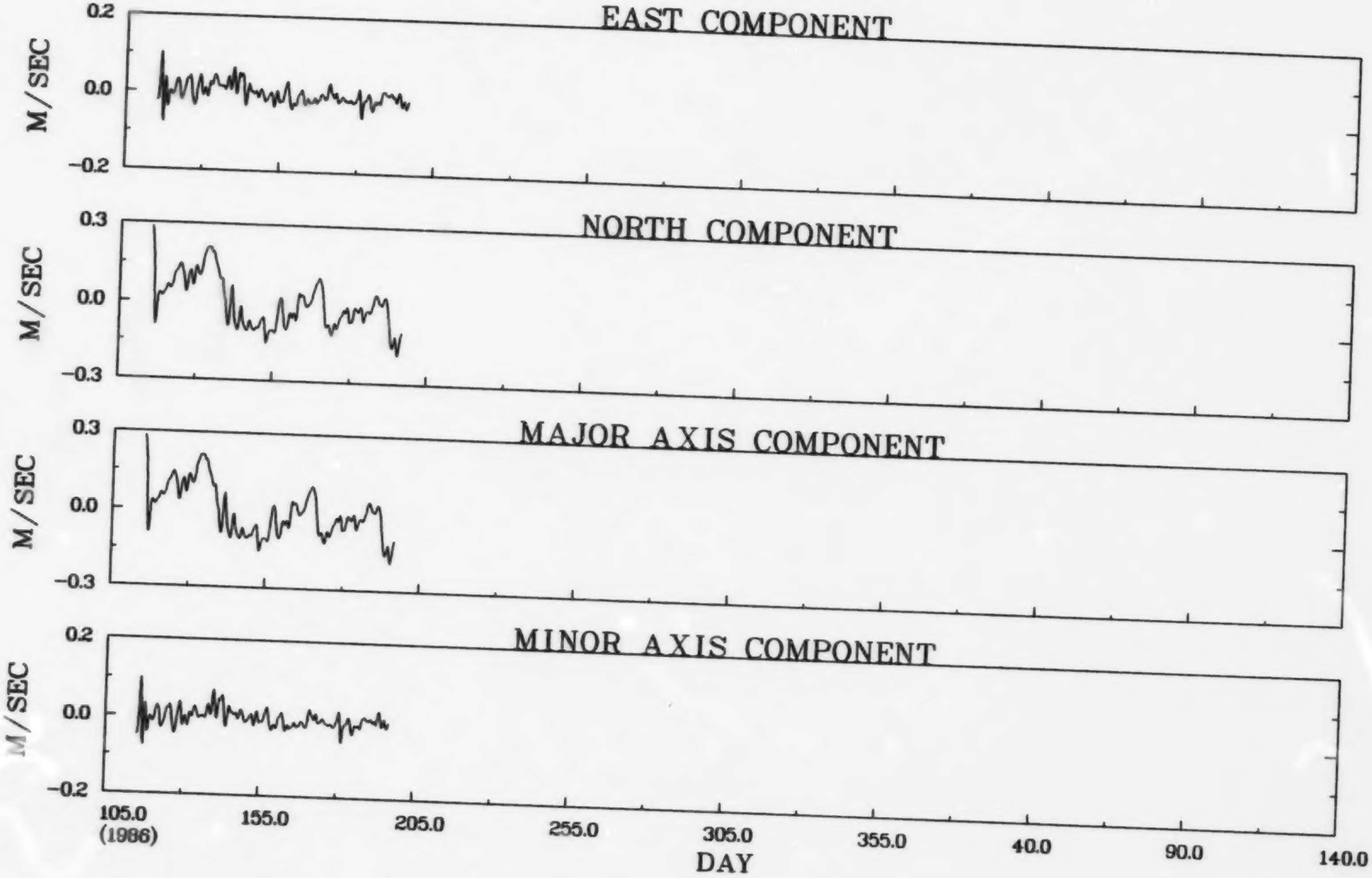

        BAND          NUMBER  PER
                              CENT

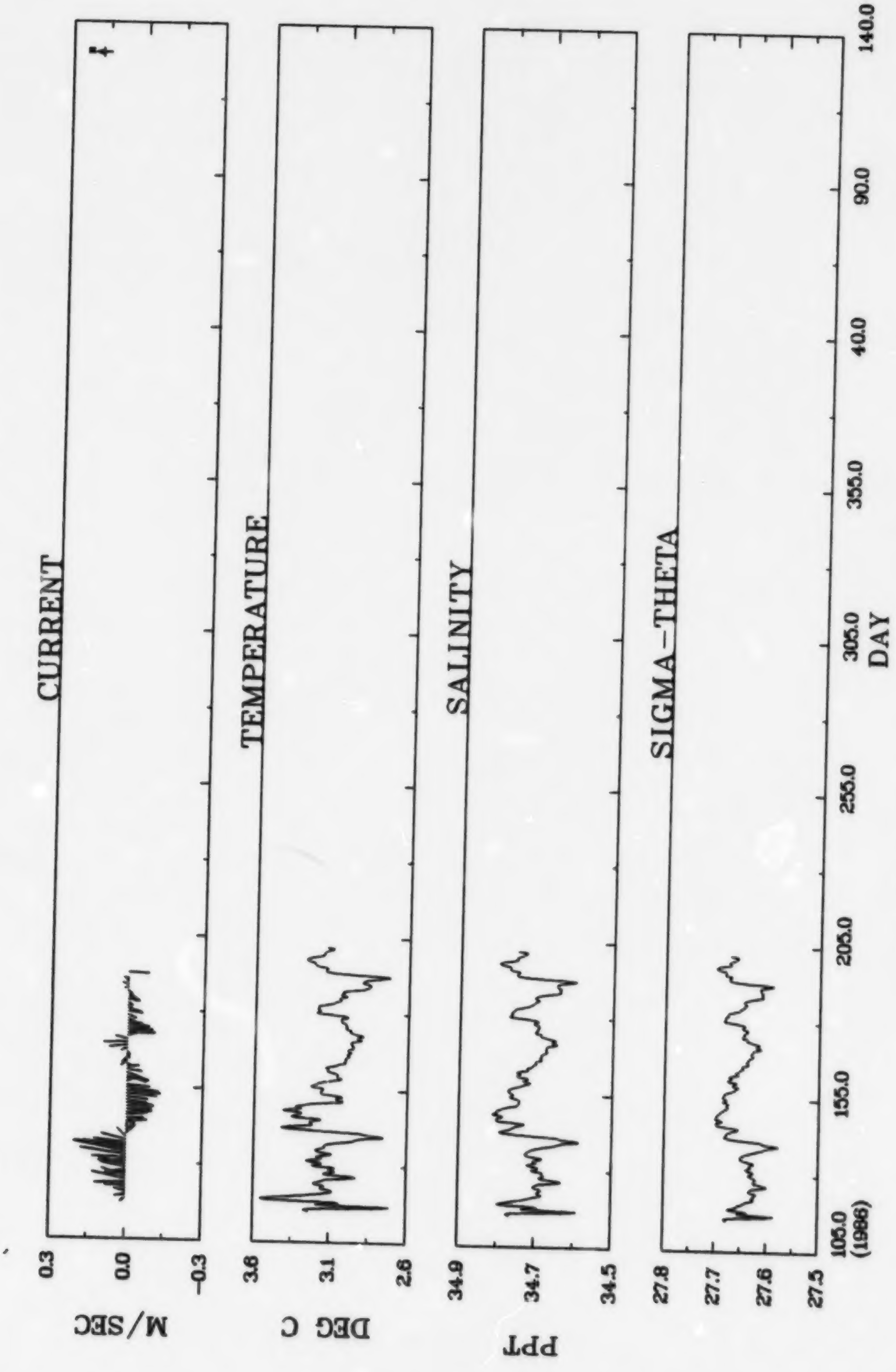

    ( 0.00,    .02)     121    1.9 ********
    (  .02,    .04)     547    8.7 *********************************
    (  .04,    .06)     892   14.2 *****************************************************
    (  .06,    .08)     689   11.0 ******************************************
    (  .08,    .10)     626   10.0 ***************************************
    (  .10,    .12)     524    8.4 ********************************
    (  .12,    .14)     620    9.9 **************************************
    (  .14,    .16)     587    9.4 ************************************
    (  .16,    .18)     598    9.6 ************************************
    (  .18,    .20)     469    7.5 *****************************
    (  .20,    .22)     276    4.4 *****************
    (  .22,    .24)     152    2.4 *********
    (  .24,    .26)     107    1.7 ******
    (  .26,    .28)      38     .6 **
    (  .28,    .30)      15     .2 *
```

STN. LF70,   346 M.



CM(LF70; 346M) - RESIDUALS
POSITION 47.354 N 47.162 W





CM(LF70; 346M) − RESIDUALS
POSITION 47.354 N 47.162 W

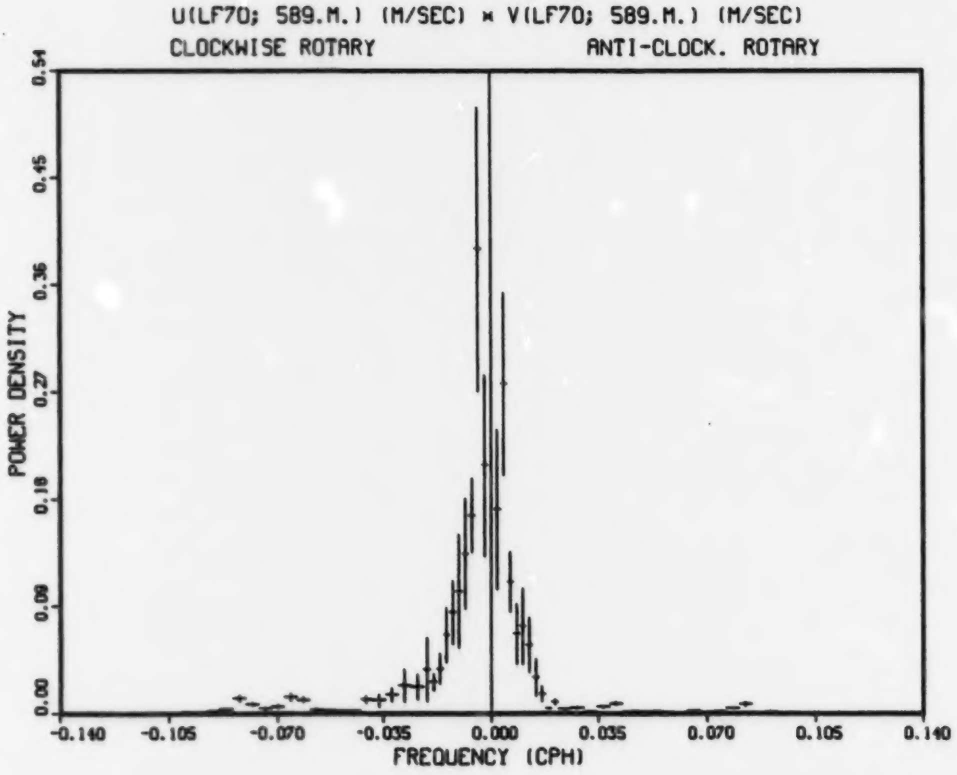
CM(LF70; 589M) - RESIDUAL STATISTICS

POSITION	47.354 N 47.162 W
BOTTOM DEPTH	722.0 M
DURATION	87.0 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	3.29	3.77	3.43	.08
SALINITY	PPT	34.81	34.93	34.88	.03
SIGMA-THETA	KG/M**3	27.71	27.80	27.75	.02
N-S COMPONENT	CM/S	-26.61	16.27	-8.07	7.44
E-W COMPONENT	CM/S	-12.58	11.47	-1.39	2.66
MAJOR AXIS	CM/S	-27.28	15.93	-8.17	7.63
MINOR AXIS	CM/S	-7.68	13.18	.53	2.04

MAJOR AXIS ORIENTATION 13.48 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



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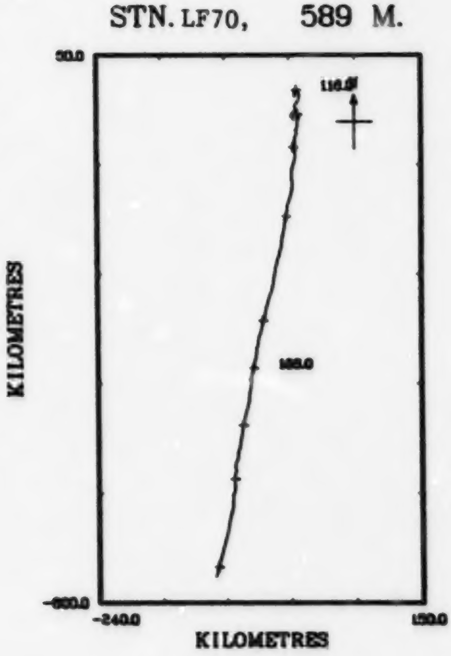
HISTOGRAM OF CURRENT SPEED AT (LF70: 589M)         TIDAL RESIDUALS (M/SEC)
 FLEMISH PASS
 CRUISE    86907.   STATION        1.    LAT   47.3542    LONG   47.1618
 INSTRUMENT                BOTTOM DEPTH  722.0 METRES
 SAMPLED EACH     1200. SECS      START TIME   8:39:60 Z   22/ 4/1986

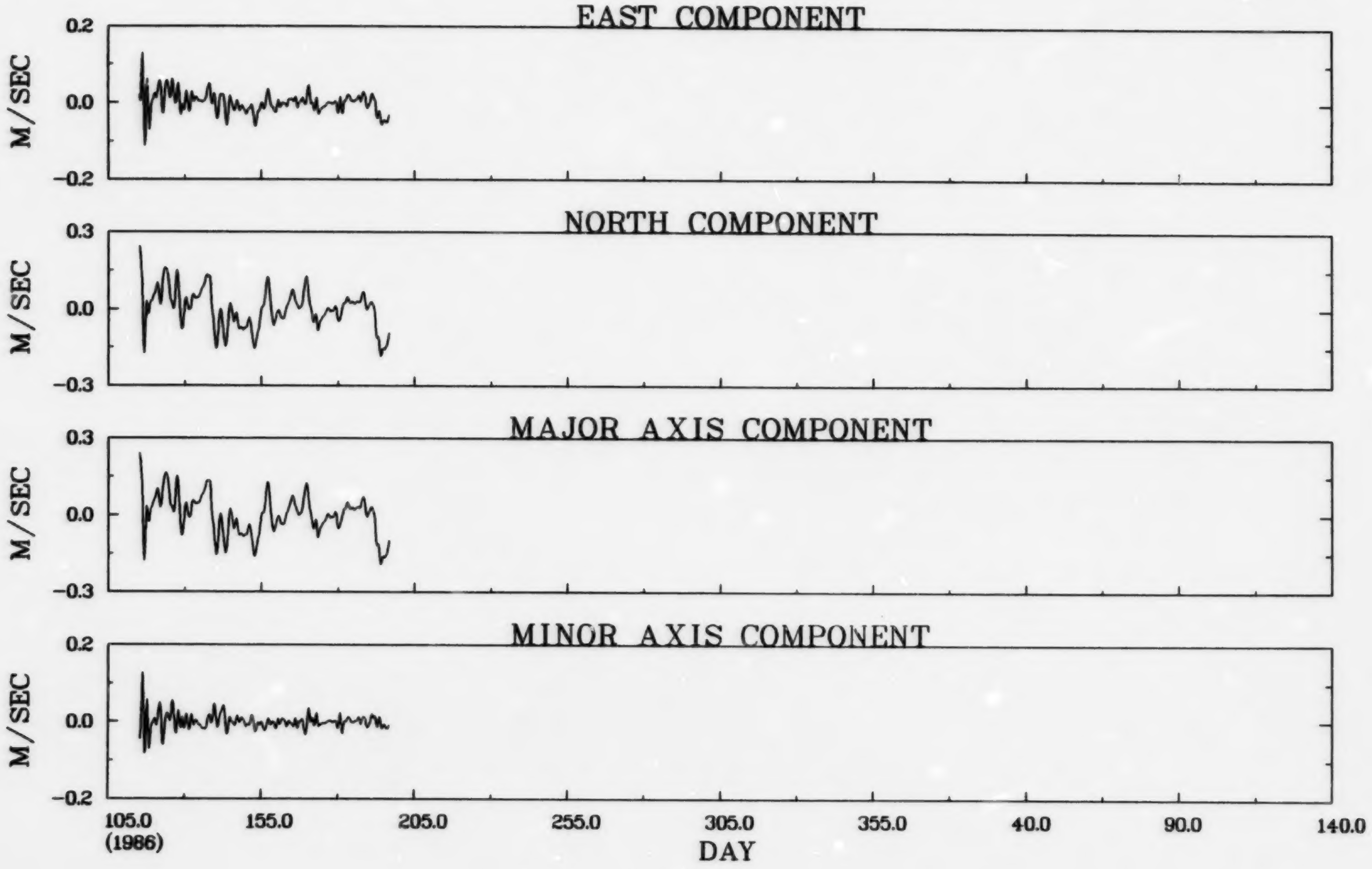
TOTAL NO. OF SAMPLES   6261
NO. OUT OF RANGE          0

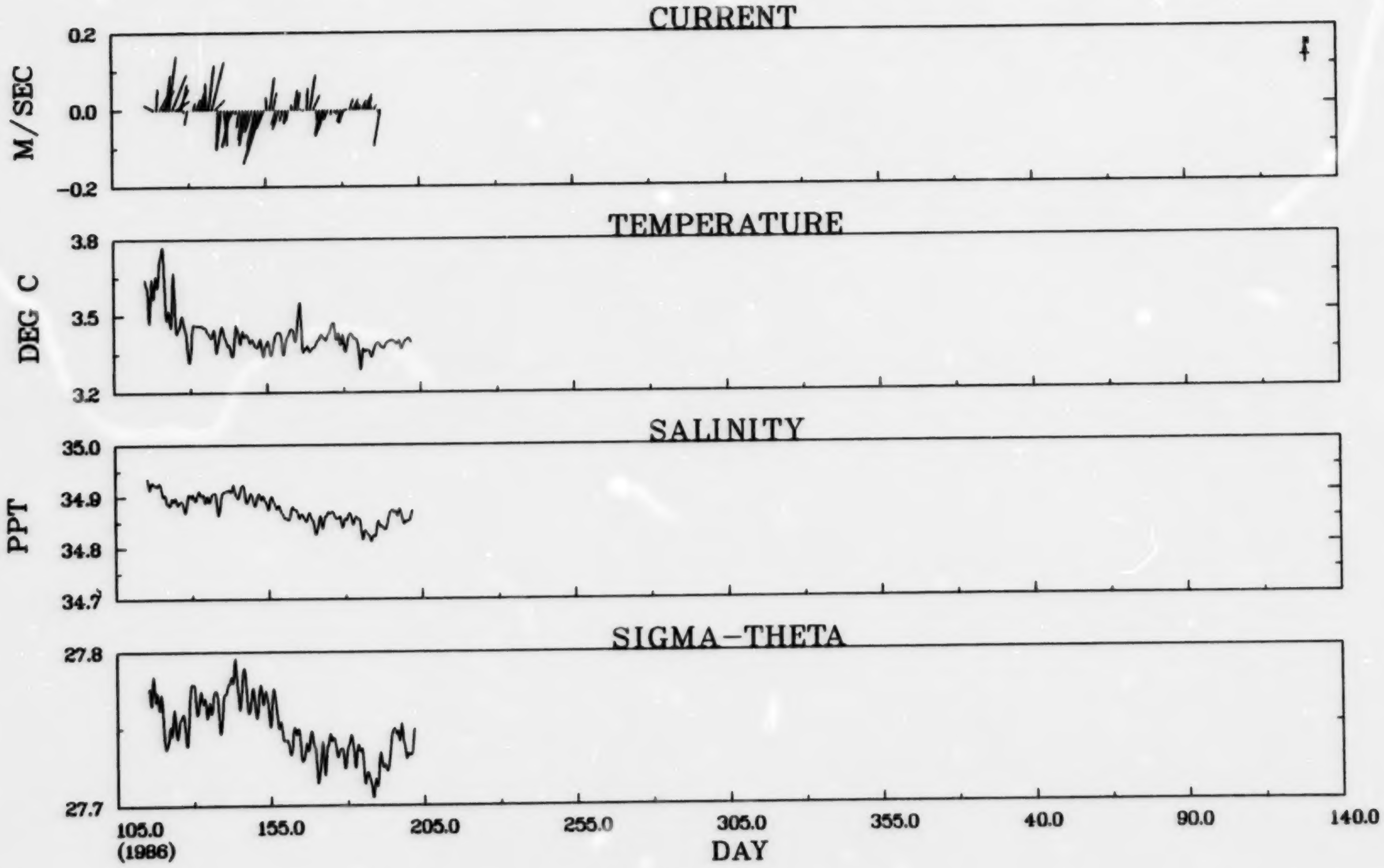
            BAND          NUMBER  PER
                                  CENT


     ( 0.00,    .02)     203     3.2 *********
     (  .02,    .04)     631    10.1 *****************************
     (  .04,    .06)    1001    16.0 *********************************************
     (  .06,    .08)    1020    16.3 **********************************************
     (  .08,    .10)     701    11.2 ********************************
     (  .10,    .12)     656    10.5 ******************************
     (  .12,    .14)     449     7.2 ********************
     (  .14,    .16)     442     7.1 ********************
     (  .16,    .18)     298     4.8 **************
     (  .18,    .20)     191     3.1 *********
     (  .20,    .22)     174     2.8 ********
     (  .22,    .24)     227     3.6 **********
     (  .24,    .26)     184     2.9 ********
     (  .26,    .28)      47      .8 **
     (  .28,    .30)      13      .2 *
     (  .30,    .32)      13      .2 *
     (  .32,    .34)      11      .2
```



CM(LF70; 589M) - RESIDUALS
POSITION 47.354 N 47.162 W





CM(LF70; 589M) - RESIDUALS
POSITION 47.354 N 47.162 W

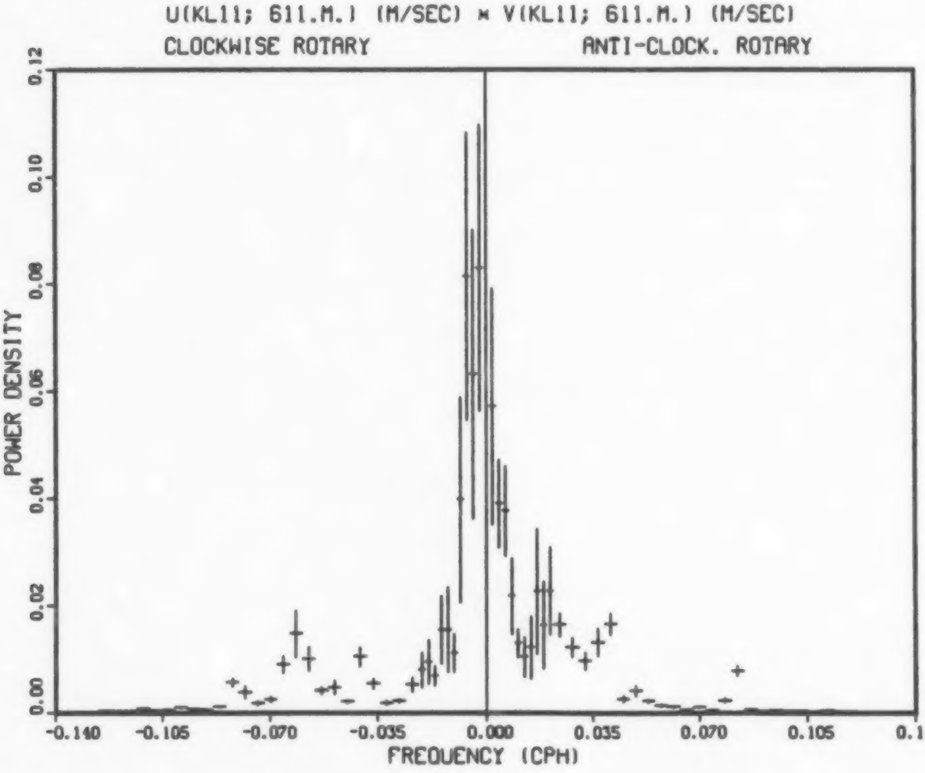
CM(KL11; 611M) - RESIDUAL STATISTICS

POSITION	47.010 N 47.047 W
BOTTOM DEPTH	1100.0 M
DURATION	104.0 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	3.25	3.83	3.54	.14
SALINITY	PPT	35.12	35.20	35.16	.02
SIGMA-THETA	KG/M**3	27.93	28.00	27.97	.01
N-S COMPONENT	CM/S	-13.88	6.83	-4.83	3.95
E-W COMPONENT	CM/S	-8.94	6.59	-1.87	2.27
MAJOR AXIS	CM/S	-13.46	6.04	-5.18	4.19
MINOR AXIS	CM/S	-7.80	6.45	.06	1.78

MAJOR AXIS ORIENTATION 21.86 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



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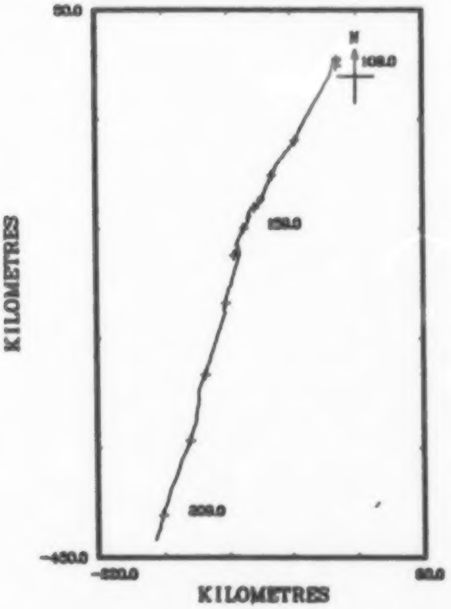
HISTOGRAM OF CURRENT SPEED AT (KL11: 611M)        TIDAL RESIDUALS (M/SEC)
 FLEMISH PASS
 CRUISE    86911.   STATION        1.     LAT   47.0102     LONG   47.0469
 INSTRUMENT              BOTTOM DEPTH 1100.0 METRES
 SAMPLED EACH     1200. SECS      START TIME   0:30: 0 Z    15/ 4/1986

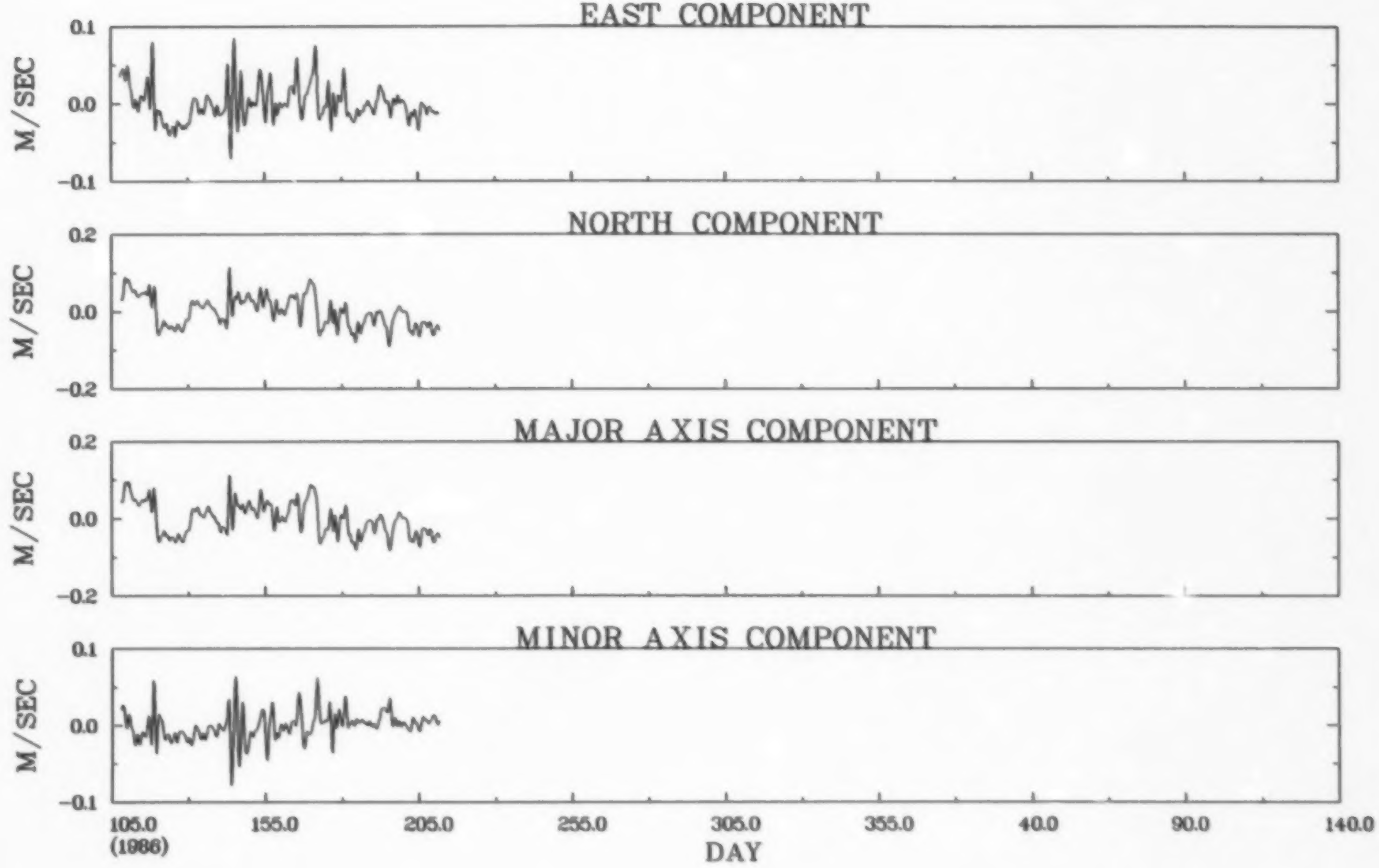
TOTAL NO. OF SAMPLES   7878
NO. OUT OF RANGE          0

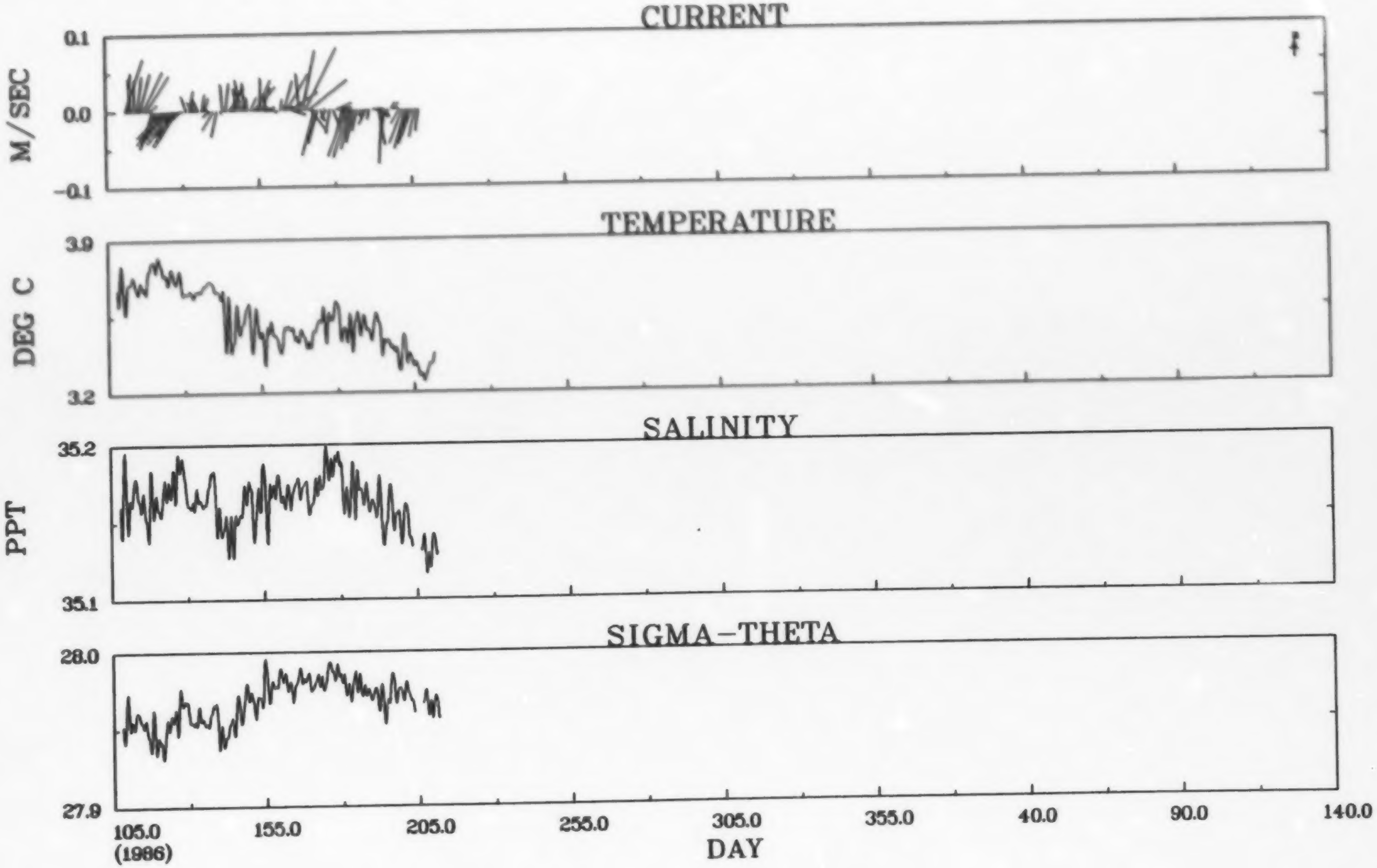

        BAND         NUMBER  PER
                             CENT


    ( 0.00,    .02)    521    6.6 *************
    (  .02,    .04)   1482   18.8 **************************************
    (  .04,    .06)   1935   24.6 *************************************************
    (  .06,    .08)   1430   18.2 ************************************
    (  .08,    .10)   1134   14.4 *****************************
    (  .10,    .12)    974   12.4 *************************
    (  .12,    .14)    336    4.3 ********
    (  .14,    .16)     55     .7 *
    (  .16,    .18)     11     .1
```


STN. KL11,   611 M.

CM(KL11; 611M) - RESIDUALS
POSITION 47.010 N 47.047 W





CM(KL11; 611M) – RESIDUALS
POSITION 47.010 N 47.047 W

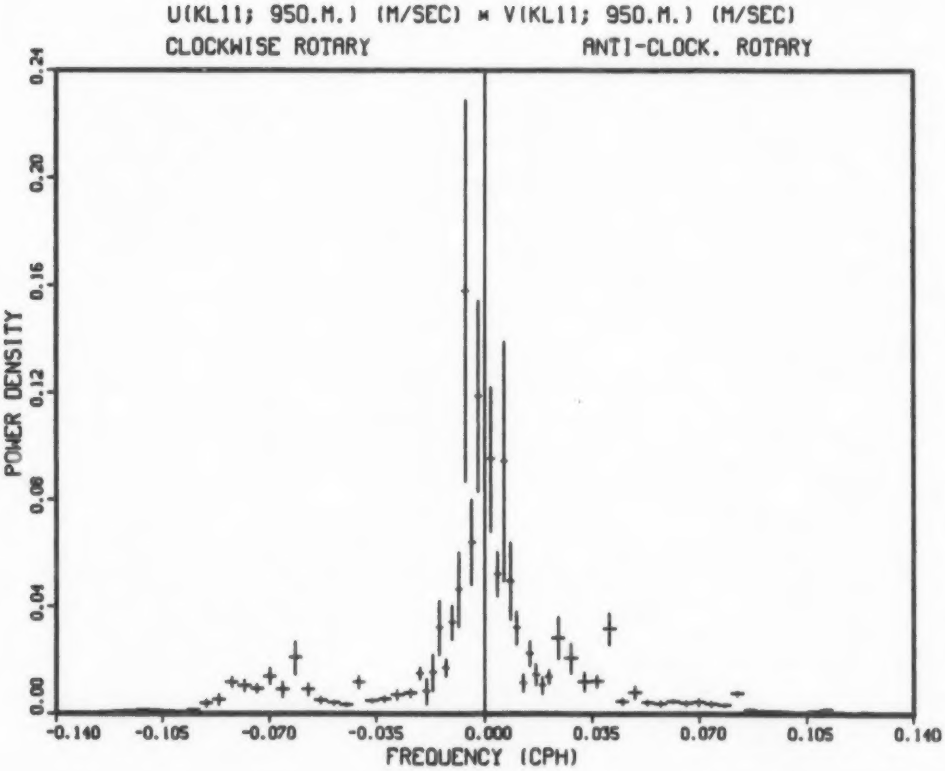
CM(KL11; 950M) - RESIDUAL STATISTICS

POSITION	47.010 N 47.047 W
BOTTOM DEPTH	1100.0 M
DURATION	104.0 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	3.25	3.50	3.30	.04
SALINITY	PPT	35.03	35.11	35.07	.02
SIGMA-THETA	KG/M**3	27.89	27.95	27.92	.01
N-S COMPONENT	CM/S	-26.90	7.07	-10.94	5.10
E-W COMPONENT	CM/S	-10.99	5.10	-3.11	1.77
MAJOR AXIS	CM/S	-26.73	6.70	-11.33	5.18
MINOR AXIS	CM/S	-8.94	5.93	-1.02	1.51

MAJOR AXIS ORIENTATION 10.70 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



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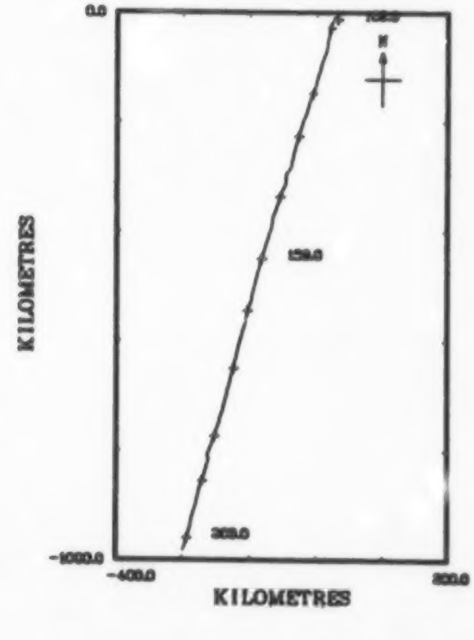
HISTOGRAM OF CURRENT SPEED AT (KL11; 950M)          TIDAL RESIDUALS (M/SEC)
 FLEMISH PASS
 CRUISE    86911.   STATION        1.    LAT   47.0102    LONG   47.0469
 INSTRUMENT              BOTTOM DEPTH 1100.0 METRES
 SAMPLED EACH      1200. SECS      START TIME   0:30: 0 Z   15/ 4/1986

TOTAL NO. OF SAMPLES   7878
NO. OUT OF RANGE          6

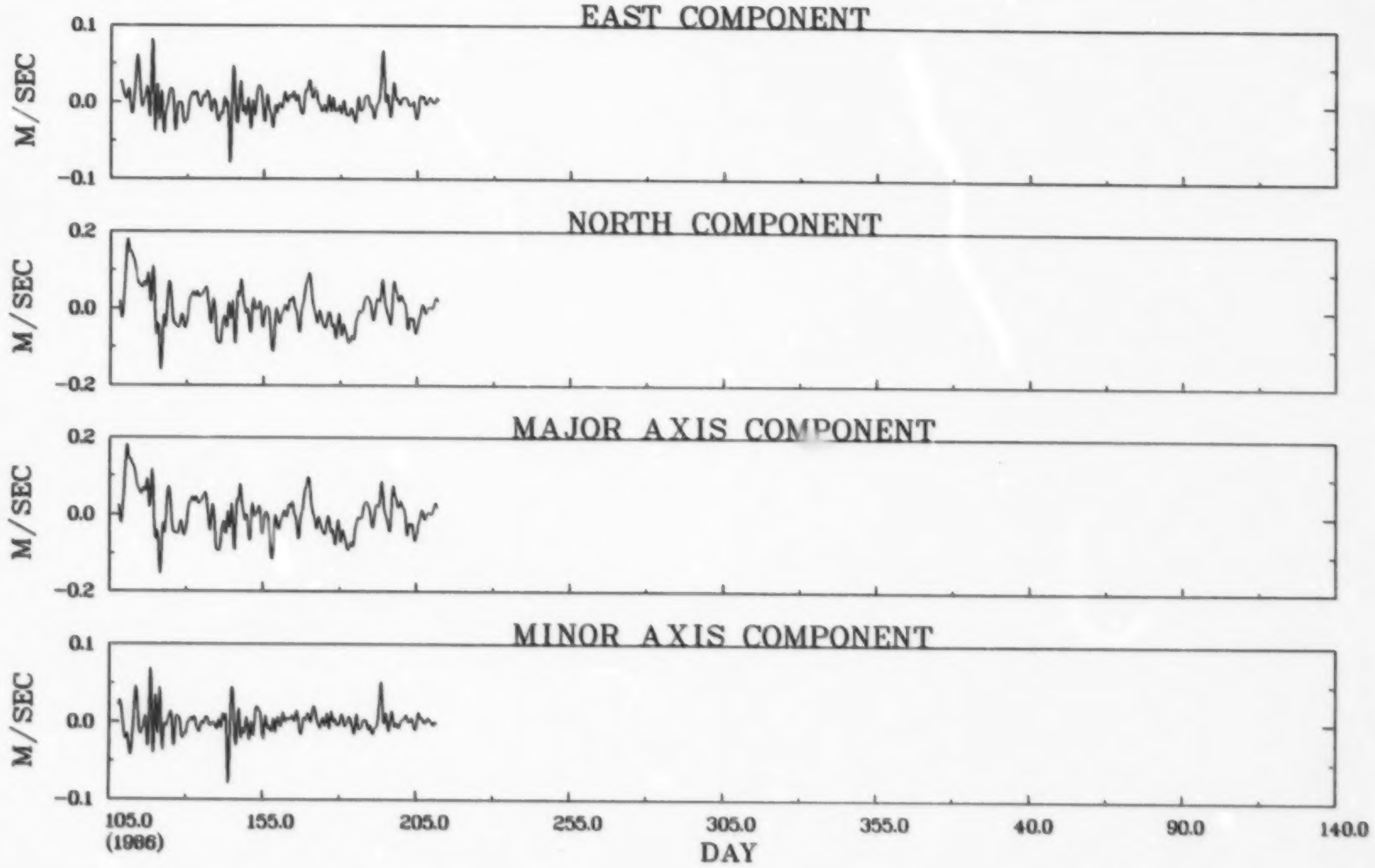
        BAND          NUMBER  PER
                              CENT

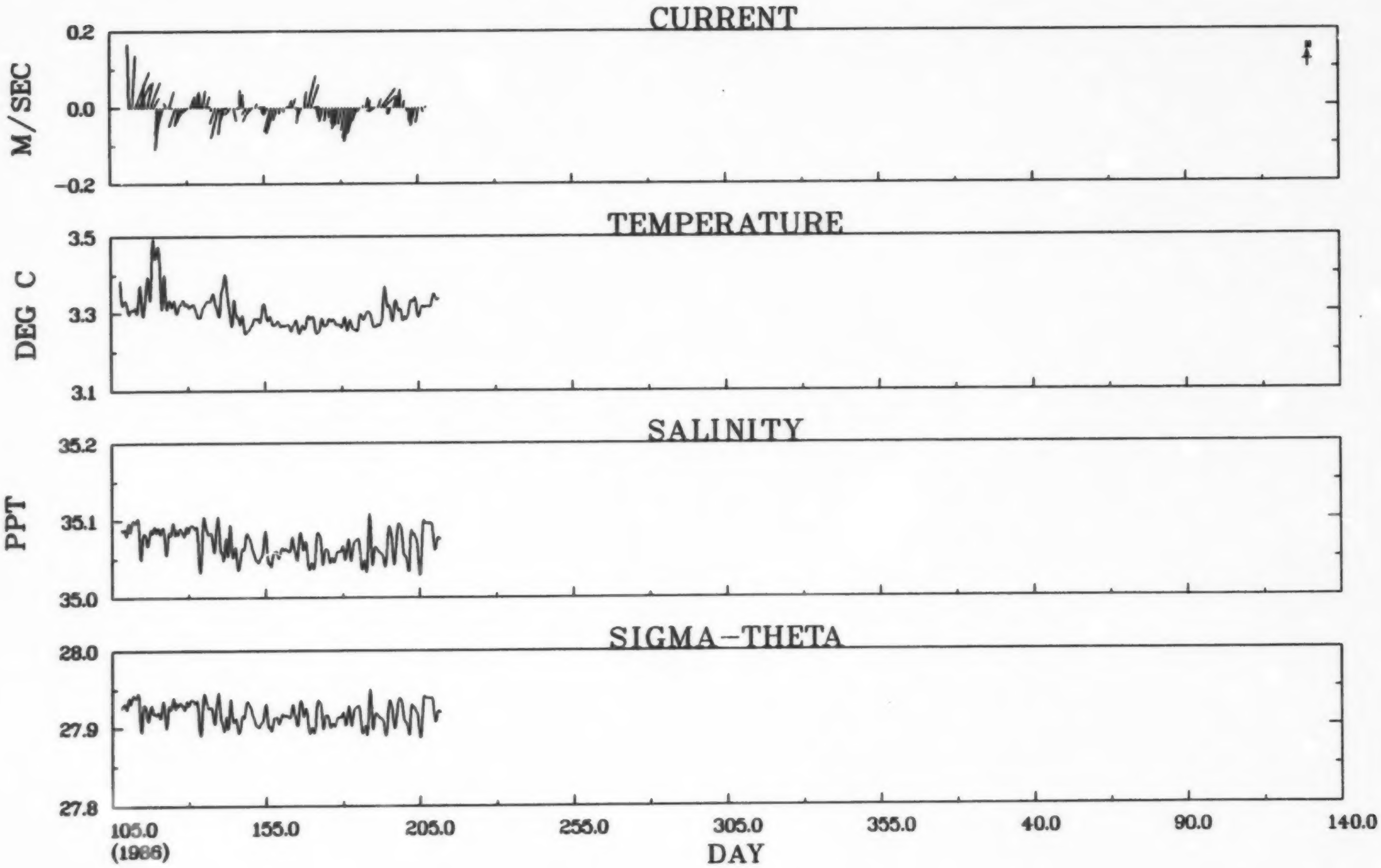

    ( 0.00,    .02)     218    2.8 ********
    (  .02,    .04)     231    2.9 ********
    (  .04,    .06)     433    5.5 ***************
    (  .06,    .08)     855   10.9 *******************************
    (  .08,    .10)    1381   17.5 ************************************************
    (  .10,    .12)    1328   16.9 ***********************************************
    (  .12,    .14)     987   12.5 ***********************************
    (  .14,    .16)     828   10.5 ******************************
    (  .16,    .18)     700    8.9 *************************
    (  .18,    .20)     432    5.5 ***************
    (  .20,    .22)     218    2.8 ********
    (  .22,    .24)     110    1.4 ****
    (  .24,    .26)      67     .9 **
    (  .26,    .28)      43     .5 **
    (  .28,    .30)      20     .3 *
    (  .30,    .32)       5     .1
    (  .32,    .34)       5     .1
    (  .34,    .36)       6     .1
    (  .36,    .38)       0    0.0
    (  .38,    .40)       1     .0
    (  .40,    .42)       3     .0
    (  .42,    .44)       1     .0
```

STN. KL11,   950 M.



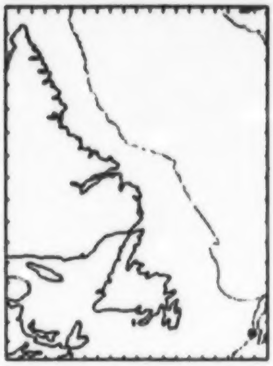
CM(KL11; 950M) - RESIDUALS
POSITION 47.010 N 47.047 W





CM(KL11; 950M) – RESIDUALS
POSITION 47.010 N 47.047 W

CM(784; 400M) - RESIDUAL STATISTICS

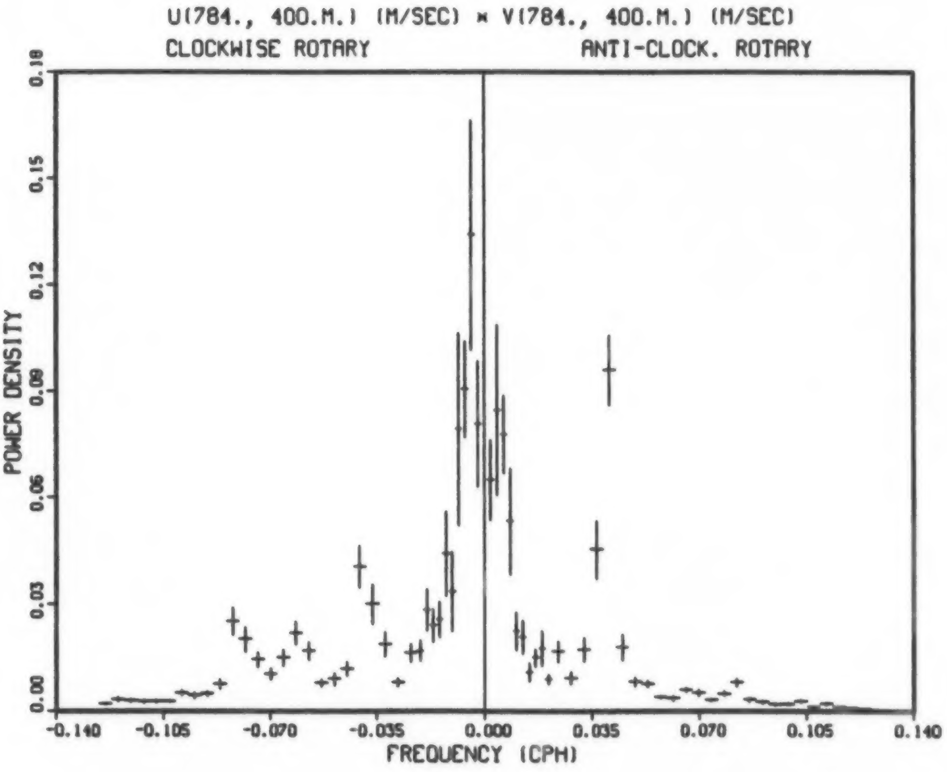


POSITION	46.437 N 47.264 W
BOTTOM DEPTH	401.0 M
DURATION	168.5 DAYS

		MINIMUM	MAXIMUM	MEAN	STD. DEV.
TEMPERATURE	DEG C	2.77	3.65	3.06	.14
SALINITY	PPT	34.73	35.34	35.06	.15
SIGMA-THETA	KG/M**3	27.67	28.11	27.93	.11
N-S COMPONENT	CM/S	-23.58	5.35	-7.72	4.78
E-W COMPONENT	CM/S	-5.21	6.88	.35	1.55
MAJOR AXIS	CM/S	-23.55	5.32	-7.71	4.78
MINOR AXIS	CM/S	-5.24	7.14	.53	1.54

MAJOR AXIS ORIENTATION 1.33 DEGREES TRUE

ROTARY SPECTRUM OF TOTAL SIGNAL



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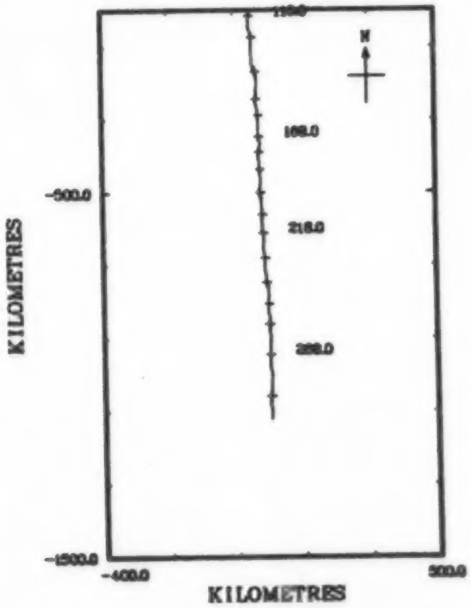
HISTOGRAM OF CURRENT SPEED AT (784: 400M)          TIDAL RESIDUALS (M/SEC)
 FLEMISH PASS
 CRUISE    86005.   STATION      784.    LAT   46.4368    LONG   47.2637
 INSTRUMENT 4200          BOTTOM DEPTH  401.0 METRES
 SAMPLED EACH    10800. SECS      START TIME   5:59:55 Z   24/ 4/1986

TOTAL NO. OF SAMPLES   1386
NO. OUT OF RANGE          0

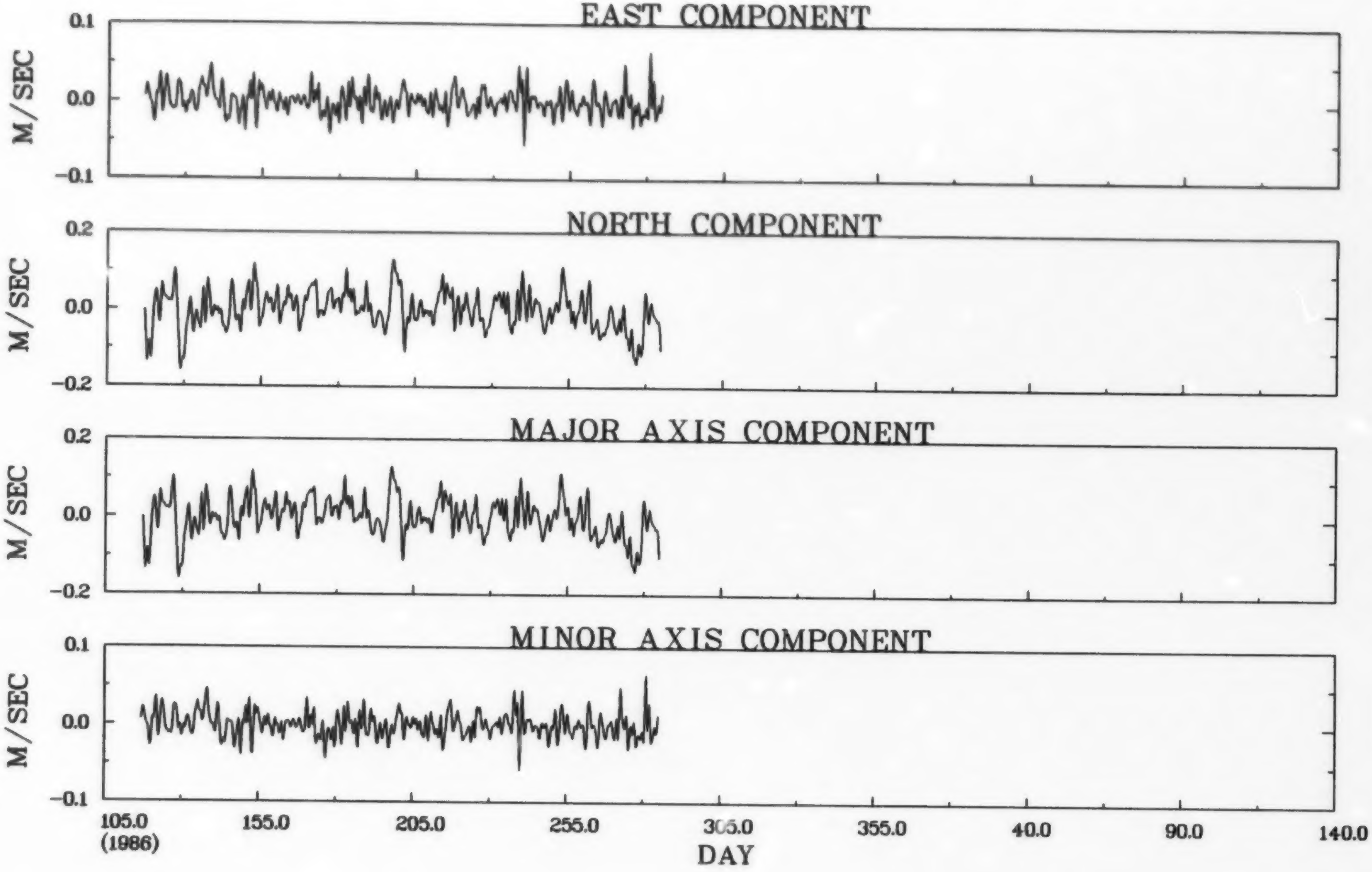
          BAND          NUMBER  PER
                                CENT

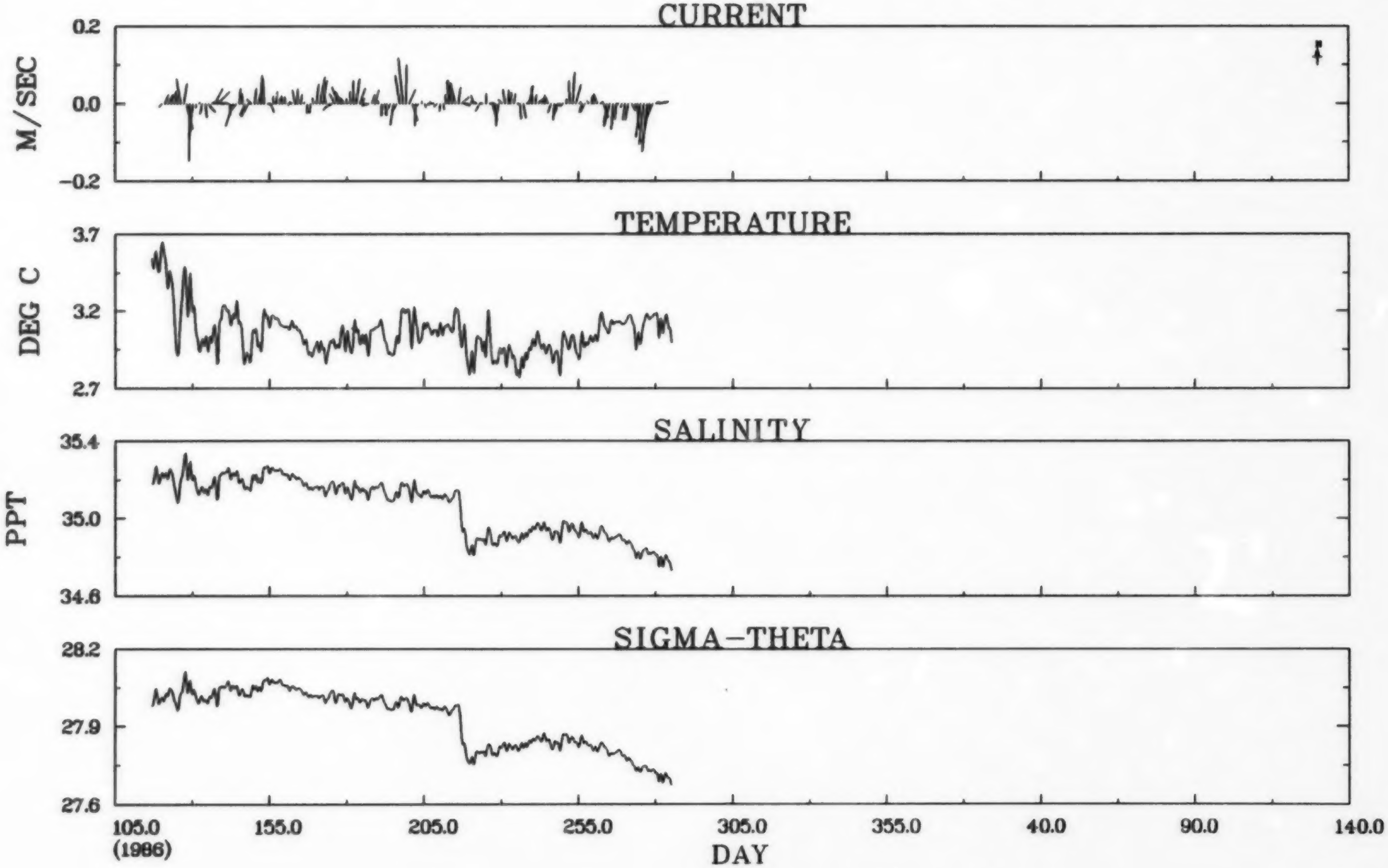

     ( 0.00,   .02)      53    3.8 *********
     (  .02,   .04)     143   10.3 ************************
     (  .04,   .06)     201   14.5 **********************************
     (  .06,   .08)     218   15.7 *************************************
     (  .08,   .10)     253   18.3 *******************************************
     (  .10,   .12)     198   14.3 **********************************
     (  .12,   .14)     138   10.0 ***********************
     (  .14,   .16)      84    6.1 **************
     (  .16,   .18)      33    2.4 *****
     (  .18,   .20)      21    1.5 ***
     (  .20,   .22)      13     .9 **
     (  .22,   .24)      15    1.1 **
     (  .24,   .26)      13     .9 **
     (  .26,   .28)       2     .1
     (  .28,   .30)       1     .1
```

STN. 784,   400 M.



CM(784; 400M) - RESIDUALS
POSITION 46.437 N 47.264 W





CM(784; 400M) – RESIDUALS
POSITION 46.437 N 47.264 W